



SATURDAY, OCTOBER 3, 1874.

Lewis' Improved Piston.

The engravings herewith represent an improved piston, the invention of Mr. Samuel T. Lewis, of Philadelphia. Fig. 1 is an end view of the front of the piston with a portion broken away to save room. Fig. 2 is a side view and fig. 3 a longitudinal section and fig. 4 represents the follower-plate with the rest of the piston removed. The piston consists of two principal plates, *a* and *b*, fig. 3, between which is placed the spiral ring or packing, *c*. The plate *a* is keyed securely to the piston-rod *d*. In front of the hub of the plate *b* is a circular piece or hub *e*, having a screw-thread on its outside whose pitch is equal to the pitch of the spiral ring *c*. The hub of the follower-plate *a* forms a nut which fits the screw on *e*. The ends of the spiral ring are held in place in each plate by keys, *f* and *g*, fig. 2, which are σ formed as to allow the ring to expand against the cylinder as it wears, and at the same time keeps the ends against the shoulders on the plates at *f* and *l*, which prevent the ring from turning. The whole is held securely on the piston-rod by the jam nuts *n*, *n*, fig. 3.

The operation is as follows: the ring is turned larger in diameter than the cylinder and is compressed so as to enter the cylinder. It thus by its own elasticity exerts a constant and equal pressure on the inside surface of the cylinder. As the ring wears it is expanded by turning the plate *a* on the screw on *e*, which opens or enlarges the diameter of the ring *c*. In doing this the distance from *o* to *p* is shortened. This is compensated by the advance of the plate *a* on the screw *e* as it is turned.

The inventor is Mr. Samuel T. Lewis, whose address is corner of Twenty-fourth and Wood streets, Philadelphia.

Contributions.

American and Fairlie Engines in Peru.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Either intentionally or through a mistake, some one has sent me from Iquique a copy of *Engineer*, I think, dated January the 26th, 1874, in which I find a letter under the head of "Railway Construction," from one Mr. Cleminson, Locomotive Superintendent of the Iquique Railway. If you will favor me with space in your most valuable paper to reply to him, I think you will only do justice to one of America's most eminent engineers.

Mr. Cleminson, in the first place attacks Mr. W. W. Evans in a pretty harsh manner, and intimates that he boastfully asserts that he wants to get at the truth as to which engines, the Fairlie or American engines, can do the most work, etc., at the least expense, when in reality he sends men down here and pays them to write things to him which are not true, after arriving here. Now, I can speak for one of these very men Mr. Evans has sent here, and say that I have been instructed by Mr. Evans to be very careful and not write anything home which is not exact and true concerning the performance of engines. In the next place, Mr. Cleminson says there was an American driver on his road who tried to make two Fairlie engines pass one another on a single track; in reply I wish to say that the aforesaid Cleminson says what he knows to be an untruth in making such an assertion and intimating that the driver was employed by Mr. Evans, for he never was contracted for or by or came out for Mr. Evans, and when Mr. Cleminson picked him up he was a poor, miserable drunkard, who had been discharged by many American master mechanics on this coast before. This is the sort of American Mr. Cleminson, Roscoe, and Fairlie have always employed, and when a good American mechanic or driver did get employment on their roads, it very soon became too hot for his northern blood, and to express it in Mr. Roscoe's words, "they had to get."

Again, Mr. Cleminson quotes the Americans by naming an engine called the Disengano—a poorly constructed engine for the road and country, which really could not be expected to do anything like good service by one who knew the road well; at the same time he omits saying anything about the two American engines called respectively Carmen and Moro, except to say that their boilers were worn completely out with about eighteen months' work; he fails to state that they had to run with salt sea water, and that both boilers were burned by drivers whom he employed to run them; he also forgets that they did more and better work and gave the then Superintendent better satisfaction than any other engines on the road. He goes on to say that he has sent to the States for new boilers and is anxiously waiting for them, but forgets to tell why they were not in Iquique and running more than a year ago. If he will write or come and ask me, I think I can tell him why they do not come; that will most likely suit him and his interests better than it would to see it in print. He says the aforesaid "Carmen" and "Moro" are all good in other respects, and if they are as he says he ought to have great praise for having kept them so, for they stood out within one hundred yards or less of the ocean, exposed to a constant salt sea breeze, without any covering whatever, and if they are good

in their working parts I think Mr. Cleminson should have the credit for keeping them so.

Mr. Cleminson says he has a Fairlie engine which consumes only about half a pound of coal and one-third of a gallon of water per ton of cargo per mile. In regard to that I think it beneath the dignity of a railroad man to reply. If I were in Mr. Cleminson's place and I ever became a boy again, I would go to the States, where they claim to have free public schools for all. I think there must be some great mistake in his figures. He omits saying that his road is about forty miles long, and the freight or cargo, all nitrate of soda, manufactured 3,000 feet above Iquique, has all to come down hill, and that there is nothing to go up except water, provisions, &c. I will now close this by saying that the aforesaid John Cleminson is a man who is not believed in anything he says in or about Iquique regarding the performance of engines. When I came here I was introduced to him; he very reluctantly gave his consent for me to walk through his shops, and took the first opportunity to run away and leave me before I had seen the American engines. I suppose he was justly ashamed of the state they are in. I think if he had been an American he would have stayed and shown up the animals of which he is boss to their best advantage.

I will now undertake to give some comparisons between the engines of Rogers' make which I brought out and the Fairlie engines here, as truthfully and correctly as it is possible for me to do, as I have the best chances to know, being in charge of the American part of the mechanical department. I very recently had a chance to see more or less how the Fairlie engines worked in comparison with mine. I was the first train out, and took, as near as I can get at it, 48 tons of freight on three English-built American bogie cars and two Fairlie cars, "four rigid-wheel boxes." I also took 2,400 lbs. of coals on starting. The train behind me was drawn by their best Fairlie engine, "The Patillos," taking three English-built American bogie water tanks, with about 30 tons of water. It also took 1,400 lbs. of coals in Patillos on starting, 700 more at the first station, 700 more at the third station, and at the fourth station she turned around and went back, he having water for that place which is on or about the forty-second kilometer post. I went to the end of the line, which is on the 85th kilometer post, with the whole of my train, and took no coals from the time I left Patillos until I got back. I think that nothing more than a fair average of the way the two engines run. I should like very much to get the

valve opened and the El Lion started on a pleasure trip, pushing another American engine behind her through the end of the shop, and within a few feet of going down a bank some six or eight feet. I think more is not necessary to show up the Fairlie men, but I will state this man Roscoe can neither read nor write his own name, and never worked in any shop as a mechanic.

GREGG D. GILSON,

In charge of American engines on P. & L. R. R.

PATILLOS, Peru, S. A., 28th July, 1874.

P. S.—I am not an American; I was born under the same flag that Messrs. Cleminson, Roscoe and Fairlie were; but when I see such men holding such positions and trying to make themselves notorious by writing letters for public perusal in which there is not the semblance of truth, I always regret I was not born in America.

G. D. G.

Action of the Forces Which Move the Locomotive.

TO THE EDITOR OF THE RAILROAD GAZETTE:

In my letter of September 8, I stated that a locomotive was made to "do useful work by the application of force to moving parts that are firmly attached to the machine," and that "in order that the locomotive may be moved by the action of its engines, it is necessary that the driving-wheels should revolve." You deny the last proposition, and proceed to sustain the denial by changing the machine into one in which all the moving parts are not firmly attached to itself. It is impossible to present any proposition that cannot be disproved, if the refuting argument can be applied to something entirely different from that stated in the original proposition.

Teachers of mathematics occasionally find themselves nonplussed by the action of students who refuse to acknowledge the truth of an axiom unless the demonstration can be given. We have about reached this point in our discussion, and as the whole argument depends upon a few simple propositions it may be best to restate them as clearly as possible; and if they are denied I must leave you so much of the victory as is due to one who is allowed to have the last word.

Proposition 1.—A locomotive, as usually constructed, all the moving parts being firmly attached to the machine, cannot be moved by the action of its engines unless the driving wheels are made to revolve.

Proposition 2.—The wheels cannot be made to revolve by the application of forces from within the machine unless the forces are applied to the wheels at some points other than their centers, and in directions which do not pass through the centers.

Proposition 3.—The moving forces are applied to the crankpins, and necessarily act tangentially to the circles described by the centers of the crank-pins, to make the wheels revolve.

Proposition 4.—The center of a revolving driving-wheel is at rest, with respect to any fixed point on the locomotive, and the periphery of the wheel is in motion, with respect to the same point.

Proposition 5. The tangential force on the crank-pin develops a corresponding force (not equal, but depending upon the relative leverage) at the periphery of the driving-wheel, and if the friction between the rail and wheel is greater than this, the wheel, as it revolves, overcomes the resistance of the locomotive to motion.

Proposition 6.—The point on which the force acts to overcome the resistance of the locomotive to motion is the point of contact of the driving-wheel with the rail. This follows as a corollary from propositions 4 and 5.

RICHARD H. BUEL.

No. 80 BROADWAY, New York, September 23, 1874.

Problem in Location.

FORTORIA, Pa., September 3, 1874.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I herewith inclose a problem which I wish some light on, and if convenient please place it before your readers.



Having located a line, *ABCDE*, and finding it necessary afterward to swing tangent *BC*, what would be the shortest process to find (point of curve) *F* that will terminate in tangent *DE*, having same radius as *CD*?

W. W. H.

The Pennsylvania Railroad Company's "Western Group" of Tributary Railroads.

"Article IV" of the elaborate report of the Pennsylvania Railroad Company's Investigating Committee is entitled "An Inquiry into the Policy, Groups and Results of all the Railways and Canals Owned or Controlled by the Pennsylvania Railroad Company." In this inquiry the Committee places the lines east of Pittsburgh and Erie in a class which it calls the "Eastern Group," and those west of those towns, including the railroad between them, it calls the "Western Group." The report relates the early negotiations and relations with the Pittsburgh, Fort Wayne & Chicago, which the Pennsylvania could have controlled at very little cost at that time when its value was nowhere appreciated. It describes the company as affected by the prevailing fever of railroad building and securing Western connections, and relates the history

of the successive leases and other arrangements for controlling Western roads. The organization and workings of the "Pennsylvania Company," which now works most of those roads, is described, and the report recommends concerning it only that an effort be made to secure all its stock for the Pennsylvania Railroad Company. Each line, with the terms on which it is worked, is described, the whole being divided into two sub-groups called the "Fort Wayne or Northern System," and the "Pittsburgh, Cincinnati & St. Louis or Southern System" which are as follows:

NORTHERN SYSTEM.

1. Pittsburgh, Fort Wayne & Chicago—	
Main Line.....	468.3
New Castle & Beaver Valley.....	14.9
Lawrence Railroad.....	9.4
	508.6
2. Erie & Pittsburgh—	
Main Line.....	84
Branch at Erie.....	2
	86.0
3. Cleveland & Pittsburgh.....	202.0
4. Ashtabula, Youngstown & Pittsburgh.....	62.5
5. Mansfield, Coldwater & Lake Michigan—	
Junction Northwest.....	65.8
Allegan to Monticello, Mich.....	19.7
	85.5
6. Toledo, Tiffin & Eastern.....	42.0
7. Indianapolis & St. Louis—	
Indianapolis to Terre Haute.....	72
Terre Haute to St. Louis (leased).....	189
Branch of latter to Alto.....	4
	265.0
8. Jeffersonville, Madison & Indianapolis—	
Indianapolis to Louisville.....	110
Madison to Columbus, Ind.....	45
Columbus to Cambridge, Ind.....	65
	220
9. Indianapolis and Vincennes.....	117
Total.....	1,563.6

Of these 1, 2, 3 and 8 are worked for a fixed rental, we believe; Nos. 4, 5 and 6 are worked at cost, No. 7 is not worked by the Pennsylvania Company, but it has a half interest in it and so receives half of its net profits over interest, and must pay half of its losses if it would save its stock from destruction by a foreclosure of the mortgage. There was a loss of \$16,156.32 in 1873.

The Indianapolis & Vincennes (No. 9) is controlled by the ownership of a majority of its shares, and the payment of interest on its funded debt.

The net profit of this system after paying rentals was, in 1873, \$1,360,024.38.

SOUTHERN SYSTEM.

1. Pittsburgh, Cincinnati & St. Louis—	
Pittsburgh to Newark.....	160.
Newark to Columbus (owned and worked in common with Baltimore & Ohio).....	33.
Cadiz Branch.....	8.
	201.0
2. Chartiers Valley.....	22.8
3. Cincinnati & Muskingum Valley.....	142.4
4. Little Miami.....	196.7
5. Columbus, Chicago & Indiana Central.....	196.7
	581.1
	1,180.

This "Southern System" is not worked by the Pennsylvania Company, but by the Pittsburgh, Cincinnati & St. Louis Railway Company, having in part the same general officers and controlled by the Pennsylvania Railroad Company by the ownership of a majority of its shares.

The company owns also a controlling interest in the Cleveland, Mount Vernon & Delaware Company, which works its own road of 144 miles, and is related most naturally with the "Northern System," and the Pennsylvania Company owns almost the whole of the St. Louis, Vandalia & Terre Haute Railroad, which is worked by the Terre Haute & Indianapolis Company.

The report then summarizes the results of the Western Group as follows:

Let us now bring these Western roads together.

The profit on the Fort Wayne System was, for..... 1,563.6 miles, \$1,360,024.38

The profit on the St. Louis, Vandalia & Terre Haute line..... 168.0 miles, 4,805.64

Total profit for..... 1,731.6 miles, \$1,364,830.02

The loss by the Southern System was, for..... 1,150.0 miles, 2,476,143.99

Total loss on lines for..... 2,881.6 miles, \$1,111,313.97

The Pennsylvania Company made a profit in 1873 from other sources of..... 1,076,296.97

Which would leave a net loss on all the lines west of Pittsburgh of..... \$35,017.10

Or, by the admission of the estimate of the General Manager, as above given, into the statement, it would show as follows:

Profit on the Fort Wayne System and the Vandalia line..... \$1,334,830.02

Profit on the Pennsylvania Company in 1873 from other sources..... 1,076,296.97

Profit of Pennsylvania Company..... \$2,441,126.99

But, as the Pennsylvania Railroad Company owns about eight-elevenths of the whole stock of the Pennsylvania Company, this stock would be represented by a profit of..... \$1,775,360.00

Losses by the Southern System..... \$2,476,143.99

Less improvements made and charged to expenses, providing an increased capacity of 15 per cent. on 1,150 miles of railroad..... 1,724,395.51

761,747.88

\$1,023,612.12

Showing a net gain to the Pennsylvania Railroad Company of \$1,023,612.12 as the final result of the operations for 1873—very nearly enough to pay for the additions made to the track and equipment of the Southern System of roads.

We also bring together the length of the Western roads and their capital, to show total investment:

Northern System:

Length of roads..... 1,563.6 miles, capital, \$83,371,901.57

Southern System:

Length of roads..... 1,150.0 miles, capital, 77,732,363.03

St. Louis, Vandalia & Terre Haute Railroad:

Length of road..... 168.0 miles, 8,127,337.49

Cleveland, Mt. Vernon & Delaware Railroad:

Length of road..... 144.0 miles, 4,235,435.00

Cost of..... 3,025.6 miles, \$173,457,057.06

Average cost per mile, including equipment..... \$57,341.17

We will hereafter discuss fully the value of the trade brought

to and taken from Pittsburgh for the Pennsylvania Railroad by these lines, but we desire now to learn—

First. What are the prospects for the future of these lines?

Second. At what figure may we place the liability of the Pennsylvania Railroad Company for them?

First, then, the prospects of these lines of railroad for the future. The building of railroads in the West is acknowledged to have gone beyond the ability of the country to make them profitable.

The competition of the trunk lines from east to west has cut down prices of transportation and travel below the point of profit. For some of the direct lines in the near West there has been sufficient trade and travel to have paid at fair rates the interest on their funded debt, and on many of them a dividend on the stock; but roads have been carried to the extreme verge of population, and, to enable the producers at these far points to send their produce to market, prices have been fixed by competition too low to pay the cost of carriage. The stockholders of the new roads holding land grants, and the many roads built on speculation, desire to attract settlers on their lines, and therefore favor the continuance of these low rates until they can dispose of their lands or get rid of their investments.

The most of these land grants to railways have been unwisely given by Congress, and have drawn the people far beyond the point where the farmer can be repaid for his labor by the money value of his products and the railway for its transportation. One or the other of both must go down. There is a limit at which transportation can be done, viz., paying the absolute cost of the work without reference to bonds or stock, and there is a minimum price which the farmer must get for his produce to give him the means of existence. With these two limits fixed, it would not be difficult to define the extreme limit of expense-paying production. If the speculators who build these railways were the only losers of money, and the farmer who exiles himself and his family from many of the benefits of civilized life was the only sufferer, we might say let them do as they please, for the limit of injury would be quickly reached. But the speculator pushes off his worthless stocks and bonds on innocent and confiding persons, thereby inflicting widespread harm, and seriously affecting the character and credit of the nation, while the farmer inflicts an irreparable wrong on his children. In this whole subject there is a question of morals involved.

It is just these facts that the people of the West should consider. So great has been the infatuation of the public mind in the East as to the value of the western trade, that they have thought there was no limit to the ability to produce and the power to transport profitably the staple productions of the West eastward to the Atlantic. The experience of the Pennsylvania Railroad Company, as we shall hereafter show, pricks the bubble of the value of the western trade and travel to the trunk lines. If these statements were true, what then? Plainly two things:

1. The far West must cease to produce grain, depending on the East and Europe for their market. Population must not go beyond the point where the producer and transporter can be both paid for their labor.

2. To secure the largest and freest development of the rich fields of the West, the consumer must be brought near to the farmer; which simply means—the manufacturer and the grain-grower must be close together. The less need of transportation the better, as between the producer and consumer. The saving of this cost of transportation is just so much added to the value of the products of the farmer and so much added to the profits of the manufacturer. The valleys of the Ohio and Mississippi must become the great workshop of this country. This realized, any demand from abroad for the cereals of the West would be met by a price which would compensate the farmer for his labor and capital, and the railroad company as the carrier.

The Western railways will not become profitable investments until this end is reached. They cannot be made to pay at any thing like the through rates they have received during the past few years. It would certainly seem reasonable to expect that the able men in charge of our general railway system would not permit the mere question of rivalry to prevail any longer and to prevent them from fixing paying rates from east to west and from west to east. They should see by their own impolitic course they are but extending the evil of a population reaching beyond the point where a living can be made by farming.

If they establish paying rates it will tend to centralize population, develop towns and cities, and create in place of destroying wealth, and the Western people will soon learn the lesson that their produce can no longer be carried below cost, nor will the few who travel from west to east and back again be transported in Pullman cars at the cost of the share or bondholder.

Or look at this question from another point of view.

The recent war raised the price of produce to a very profitable figure, and thereby stimulated the building of railways in the West. The success of those lines built and in use during the war, the profits in farming, and the springing up of thriving towns, seemed to prove that such results would continue to the limit of the ability to build railways. But since the war prices have been gradually decreasing; a succession of large crops, caused by labor returning measurably to its old channels, favorable seasons, and peace in Europe, have so reduced prices, that, to meet this reduction, the railways have cut down their tariffs to the point where transportation has become less profitable. Already millions of dollars of capital invested in Western railways, which, a few years ago, were thought to be securely invested, have been sunk, and the startling problem is, how much further will this go, and how long will it continue? The freight charges over railroads depending on the carriage of the products of the farm cannot go much lower. The stock of some of such roads is sunk, and any further reduction in rates will destroy the capacity of these roads to pay the interest on their funded debt, and bring them down to absolute cost of transportation.

It is also well to note, as having an important bearing on the question, that the area of grain-producing land is increasing, in the great producing countries of the world, while the ability to consume does not show a proportioned increase. The prospect this year is for another large crop following the one of 1873, the inevitable result, unless fortuitous circumstances interfere, will be lower prices for grain and meats. We thus have these three facts before us:

1. That the tendency of prices for the products of the farm is downward.

2. That the cost of transportation cannot be safely reduced below existing rates.

3. That the products of the farm from the Far West will not, at the present rates, profitably bear railroad transportation to the East and pay the railroad company a fair price for its carriage, or the farmer a just reward for his labor and capital invested.

With this discouraging outlook into the future, it is strange that we find the Western farmers moving in their strength to find out what can be done to drive away the grim figure of poverty which threatens them? That their first attack is on the transporter is natural; he seems to be their nearest enemy, and as they have none of the stocks or bonds of the railroad companies, and the owners are afar off, the foreigner's property is a tempting object of attack, even to destruction. There is in this truth a moral that the stockholders of the Pennsylvania Railroad Company may well learn: that the strength of a railway company in meeting unjust attacks on its property lies more in the fact of the people who use the road having a strong personal interest in it, as stockholders,

than in the justice of their cause. And this is the explanation of the condition of things in Wisconsin and Iowa. The same influences may yet meet you in other Western States. But to return from this digression.

The Western farmers will soon find, if they succeed in destroying the capital invested in the railways, that this will not relieve them. They must realize the truth of their position and acknowledge the fact that *they have gone too far west*. The farmer of to-day is unlike the farmer of earlier years. He has not his habits of economy and thrift. Many things which are now necessities to the farmer and his family were unknown to their fathers, or, if known, were considered luxuries. Those who settled the Middle States had the knowledge and ability to feed and clothe their families within themselves, and were, therefore, more independent than the farmer of to-day. Again, we have all been dazzled with the wonderful growth of the West, and, as her cities have arisen in a day, have thought such development could not be without a sound basis to build upon. But as we look closer, we find those cities have grown up and become rich as the home of the middle-man between the producer and the consumer, the manufacturer and the wearer. These men have fixed the prices of, and speculated on, the productions of the farmer, and have heretofore made large profits on the necessities of life sold to him. It is, to some extent, reproducing the history of every purely agricultural country in the old world, with cities of great wealth, and surrounding millions of producers in great poverty. To the majority of our people all this may read as an exaggerated statement; but a reference to the books of our merchants will prove the truth of our statements.

We again come to the conclusion heretofore arrived at: that the only hope for the Western farmer is, either to move eastward and let the capital involved in the roads built to the far West be entirely sunk, or to draw the consumer to his side, save the capital expended in the railways, and thereby secure the benefits already stated. The increase of manufacturing in the States of Ohio, Indiana, Illinois, and Missouri shows that the minds of many have appreciated the necessities of their position. They see that their cities must have some surer basis of wealth and growth than facting simply as middle men, and that the one tends to poverty, the other to wealth.

For the West to think of depending on England as a market for its produce and as a place to purchase its manufactured goods is suicidal, and not much less to depend on the Middle States and the East for the same character of market and the same source of supply. Your Committee have felt authorized thus fully to discuss these points, for in them lies much of the future of the roads you are interested in west of Pittsburgh. You cannot look forward to much change in their condition while so much of their business is through and low-priced freight, on which they receive but a pro rata of charges between points east and west. Their policy must be to encourage local trade and travel, to offer every inducement for parties to introduce manufacturing and industrial works on their lines, and to let the through business be the surplus products, put into the more concentrated shape of cattle, hogs, &c.

Paradoxical as it may appear, the Pennsylvania Railroad Company will realize more money from its Western investments, and more profit on your main line, when you receive less tonnage, because the products of the farm from those roads, for the tonnage that will then be sent eastward will be of higher value, being labor and food in condensed shape, and necessarily bear a higher and more profitable rate of freight.

Your Committee, in their visit to the Western roads, made diligent inquiry on this point of local trade. Your Northern or Fort Wayne system is profitable, because it has a large and rapidly increasing local business, making exchanges of ore for coal, iron for cattle and grain, &c., &c., and these within the range or limits of its own roads.

For the Southern system so much cannot be said. By competition, the Little Miami Railroad, which until lately was one of the most successful railways in the country, has been reduced to one of the poorest paying of your lines. Owing to some mismanagement, or the rivalry of its northern competitors, it lost the business of the Cleveland, Columbus & Cincinnati Railroad, which furnished more than one-half its total receipts, and caused that company to build a rival line to Cincinnati via Dayton and Springfield. This loss leaves the rental extravagantly high, and the line is a burden on the Pittsburgh, Cincinnati & St. Louis Company. The receipts on this line will gradually increase, as it runs through a rich and thickly settled country and controls the entrance into Cincinnati on the eastern side of the city.

The Columbus, Chicago & Indiana Central also stands at too high a rental for the character of the road and the country through which it passes. There will be improvement on it, but as it, with its Illinois State Line Branch, passes through an almost purely agricultural country, this improvement in earnings will come slowly, and a large portion of the rental will probably be a charge on the Pittsburgh, Cincinnati & St. Louis Railway for some years to come.

The Jeffersonville, Madison & Indianapolis road has better prospects, and should soon cease to be a debtor road. The Indianapolis & Vincennes road will continue to be a charge for some years, unless the trade from the Cairo & Fulton road can be secured for it, which is not very probable, and the competition at Cairo of the Illinois Central Railroad would destroy any such probabilities. The Indianapolis & St. Louis road will in time pay—it now clears its interest and has a fair future before it.

The Vandalia line to St. Louis, as a part of the direct line from New York to St. Louis, will grow rapidly. The new bridge of St. Louis adds greatly to its value, and lastly, the Pittsburgh, Cincinnati & St. Louis Railway, a part of the main line to St. Louis, Cincinnati and the South, with the trade that must be thrown upon it by the many roads that join and intersect it, by the valuable coal traffic that originates on its main line, should be able readily to meet all the interest on its funded debt—with a good prospect for very great improvement in its financial results as a whole.

The second point designated above was to see or to estimate, if possible, the extent of the ultimate responsibility of the Pennsylvania Railroad Company for the engagements of the Pittsburgh, Cincinnati & St. Louis Railway Company.

Taking the losses of 1873 as a basis, which amounted to \$2,476,143.99 and the General Manager's estimate of value of the betterments as correct, at..... 1,724,395.51

Would leave a balance of..... \$751,747.88 as the real loss on that system of roads.

By the statement of loss on the Southern system of roads, you will note there was an aggregate charge of \$540,088.57, being for discount on sale of bonds paid by those roads on account of their floating debt, which would reduce the amount of loss in working those roads to \$211,649.31.

Now we do not see how the Pittsburgh, Cincinnati & St. Louis line can stand under much more bonded indebtedness than it now has, and we therefore think it safe that you should estimate, as a possible future loss on this line of roads, at least \$500,000 a year. This limit may be passed, and yet, with fair success in the administration of your Fort Wayne or Northern system under the Pennsylvania Company, the profits there should square the accounts between the two systems, or leave an unimportant balance on one side or the other.

The trade centers in the West reached by your systems of railway are surely enough, and the responsibilities assumed sufficiently great, to satisfy the most ambitious. You can now stop with safety, and your interests will be best taken care of

by carefully nursing these Western investments; limiting their expansion or extension, unless the local demands require it, and hoping for the time when, by some arrangement, it will not be necessary for you to employ so much capital in holding these roads.

It is but just to say, that at the time these contracts were made, the prices for freight were much higher than in 1873. If the same prices had been received in 1873 as existed when they were made, the result would have been much more favorable. It was also fair to presume at the time the contracts were made, that the present low prices were not thought possible, or that managers of railroads would, through mere rivalry, so depreciate their own property.

The same principle that has led your company into unwise investments has drawn prudent men in their private affairs to greater proportionate expansion—the history of trade is full of warning on this point.

2. Value of the Competitive Passenger Travel and Freight Received from and Sent to the Western Lines over the Pennsylvania Railroad—Main Line.

In former parts of this report, we promised a discussion of this important question. We were led to examine it the more thoroughly from the prominent position which "Western trade and travel" have occupied in the public estimation for so many years.

In the early years of our national existence, the passage of the mountains was accomplished by the turnpike which united the East and the West, Philadelphia—at that time the great commercial city of the new nation—commanded the best means of access to the West, and profited accordingly. Soon New York entered upon the construction of her great canal from Albany to Buffalo, and Pennsylvania, not to be outdone, followed with her mixed system of canal and portage railway from Columbia to Pittsburgh. Virginia attempted the same in her James River & Kanawha Canal, but failed to complete it. Millions of dollars were expended in this effort to unite the East and the West.

The introduction of the railway, with the advantage of the speedy locomotive over the weary horse that slowly tugged at the canal-boat, soon produced a new competitor: and as the turnpike gave way to the canal as a cheaper medium of transportation, so the canal gave way to the locomotive, in illustration of the adage that "time is money"—and a very large amount of money was expended in the effort to build the New York Central, the New York & Erie, and the Baltimore & Ohio railroads.

Your line came in at a later period, though completed through to Pittsburgh before the Baltimore & Ohio Railroad reached Wheeling. With the completion of these lines began the strong competition for this great prize, "the Western trade and travel," and the parties interested in the New York Central Railroad Company entered into the struggle for the control of the Western lines. The New York & Erie and the Atlantic & Western railroads, after severe struggles, penetrated the West. The Baltimore & Ohio Railroad Company also built her lines to the Ohio, and besides made investments north of that river. The Pennsylvania Railroad Company, from the causes heretofore stated, in order to protect itself, was drawn into investments and liabilities heavier than any other line, and, being so much involved, felt it to be its true policy to perfect its connections with the great commercial centers of the West, as has been heretofore sketched.

We will now endeavor to ascertain the value to the shareholders of the Pennsylvania Railroad Company of all these efforts.

The traffic that comes east bears the lowest tariff, as is well stated in the last annual report:—"A close examination of the accounts of this company will show that its charges for freight upon agricultural products scarcely bear the expenses of transportation, and on many items the charges for transportation are below the actual cost." And the competition of the trunk lines has been so close as to reduce materially the profit of the transportation of the valuable articles which the sale of these products enables the merchants and the farmers to purchase in the East for consumption at home.

Now let us ascertain the value of this trade and travel to the Pennsylvania Railroad Company in 1873. The through tonnage coming from Philadelphia and Baltimore, and destined to points west of Pittsburgh, and that sent East from the West through Pittsburgh in the year 1873, amounted to—

	Mileage.
Through east....	573,795 tons, yielding, \$3,464,690 51
Through west....	319,661 " " " 1,111,816 50
Total.....	1,193,456 \$4,576,507 01
The through freight earnings were.....	\$4,576,507 01
Local freight earnings were.....	15,032,048 06

Total freight earnings.....\$19,608,555 07

The total mileage of tons of freight over the road was.....1,384,831,970 miles.

Which is equal to passing over the whole road (356 miles) of.....3,890,000 tons

The through freight (356 miles) was.....1,193,456 "

Leaving the local freight equivalent to.....2,696,544 tons

over the whole line, showing that the through freight was 31 per cent of the whole average over the road.

The table above shows that the receipts for—

Through freight eastward averaged per ton per mile.....0.111* cents.

Through freight westward averaged per ton per mile.....0.097* "

The average through freight earnings would be.....0.107* "

If the expenses of conducting transportation in 1873 cost, per ton per mile, .0857* cents, it would be fair to place the cost of the through freight per ton per mile at .0070* cents.

The profit on the through freight would then be—

On 1,193,456 tons [moved 356 miles], at .0107*—,0070* = .0087* = \$1,588,642.84.

Let us now examine the passenger account.

	First-class.	Emigrant.
Number of passengers delivered to connecting lines in Pittsburgh.....	79,296	37,445
Received from connecting lines in Pittsburgh.....	79,017	2,110
	158,313	39,555

The average receipt of through passengers per mile was....2.36 cents.

The average expense of carrying through passengers on account of speed, heavy cars, &c., was equal to at least the average cost as given in the expenses for 1873, which was, per mile.....2.01 cents.

Showing profit per passenger per mile of .0035,* or three mills and one-half.

This, for 158,313 passengers, would give a profit of, at .0035* cents, per mile.....\$197,288 00

The profit on freight carried was.....1,588,642 84

Showing total profit on through passenger and freight traffic.....\$1,785,930 84

It is curious to note that the through freight and through passengers are very nearly equal to one-third the total amount of freight and number of passengers passing over the whole length of your road.

Now the capital employed in your main line in 1873 was

* All these should be decimals of dollars, not of cents.—EDITOR RAILROAD GAZETTE.

† This should be 0.857 cent.—EDITOR RAILROAD GAZETTE.

‡ Omitted in the report, but the profit is given correctly.—EDITOR RAILROAD GAZETTE.

\$53,360,456.03, and to charge the through business with one-third of this capital would give \$17,786,818.68, on which it would show a profit of \$1,785,930.84, or a fraction under ten per cent. per annum.

This profit is to be considered in connection with the investments of money made, the value of the guarantees given on these Western roads, the effect the transportation of this Western business has on the cost of the general movement of traffic and passengers on the main line, and the real amount of business the control of these roads gives you.

But whether or not these Western roads pay financially to your main line, it is true that the Pennsylvania Railroad was built to bring trade and travel through the State of Pennsylvania to the city of Philadelphia, which it undoubtedly has done, and, if necessary, reasonable sacrifice of some profit should be made for these objects.

Telegraphs and Railroads in American Army Operations.

Gen. W. T. Sherman has written some "Recollections" of our great war in which he played so conspicuous and effective a part, the latter portion of which has been published, and from this we extract the following on the use of telegraphs, railroads and engineer troops in our campaigns:

USE OF THE MAGNETIC TELEGRAPH.

For the rapid transmission of orders in an army covering a large space of ground, the magnetic telegraph is far the best, though habitually the paper and pencil, with good mounted orderlies, answer every purpose. I have little faith in the signal service by flags and torches, though we always used them, because almost invariably when they were most needed the view was cut off by intervening trees or by mist and fog. There was one notable instance in my experience when the signal flags carried a message of vital importance when the heads of Hood's army, which had interposed between me and Alatoons, and broken the telegraph wires—as recorded in my "Recollections;" but the value of the magnetic telegraph in war cannot be exaggerated, as was illustrated by the perfect concert of action between the armies in Virginia and in Georgia in all 1864. Hardly a day intervened when Gen. Grant did not know the exact state of facts with me, more than 1,500 miles off as the wires ran. So, on the field a thin insulated wire may be run on improvised stakes, or from tree to tree, for six or more miles in a couple of hours, and I have seen operators so skillful that by cutting the wire they would receive a message with their tongues from a distant station. As a matter of course the ordinary commercial wires along the railways form the usual telegraph lines for an army, and these are easily repaired and extended as the army advances, but each army and wing should have a small corps of skilled men to put up the field wire and take it down when done. This is far better than the signal flags and torches. Our commercial telegraph lines will always supply for war enough skillful operators.

THE VALUE OF RAILROADS.

The value of railroads is also fully recognized in war quite as much, if not more so than in peace. The Atlanta campaign would simply have been impossible without the use of the railroads from Louisville to Nashville (185 miles), from Nashville to Chattanooga (151 miles), and from Chattanooga to Atlanta (137 miles). Every mile of this "single track" was so delicate that one man could in a minute have broken or moved a rail, but our trains usually carried along the tools and means to repair such a break. We had, however, to maintain strong guards and garrisons at each important bridge or trestle—the destruction of which would have necessitated time for rebuilding. For the protection of a bridge, one or two log block-houses, two stories high, with a piece of ordnance and a small infantry guard usually sufficed. The block-house had a small parapet and ditch about it, and the roof was made shot proof by earth piled on. These points could usually only be reached by a dash of the enemy's cavalry, and many of these block-houses successfully resisted both cavalry and artillery.

The only block-house that was actually captured on the main line was the one described near Alatoons. Our trains from Nashville forward were operated under military rules and ran about ten miles an hour in gangs of four trains of ten cars each. Four such groups of trains daily made 160 cars, of ten tons each, making 1,600 tons, which exceeded the absolute necessity of the army and allowed for the accidents that were common and inevitable. But, as I have recorded, that single stem of railroad, 473 miles long, supplied an army of 100,000 men and 35,000 animals for the period of 196 days, viz.: from May 1 to Nov. 12, 1864. To have delivered regularly that amount of food and forage by ordinary wagons would have required 36,800 wagons of six mules each, allowing each wagon to have hauled two tons twenty miles each day, a simple impossibility in roads such as then existed in that region of country. Therefore I reiterate that the Atlanta campaign was an impossibility without these railroads, and only then because we had the means to maintain and defend the road in addition to what were necessary to overcome the enemy. Habitually a passenger car will carry fifty men with their necessary baggage. Box cars and even platform cars answer the purpose well enough, but they should always have rough board seats. For sick and wounded men, box cars, filled with straw or bushes, were usually employed. Personally I saw but little of the practical working of the railroads, for I only turned back once as far as Resaca; but I had daily reports from the engineer in charge, and officers who came from the rear often explained to me the whole thing, with a description of the wrecked trains all the way from Nashville to Atlanta. I am convinced that the risk to life to the engineers and men on that railroad fully equaled that on the skirmish line, called for as high an order of courage and fully equaled it in importance. Still I doubt if there be any necessity to organize a corps specially to work the military railroads in time of war, because in peace these same men gain all the necessary experience, possess all the daring and courage of soldiers, and only need the occasional protection and assistance of the necessary train guard, which may be composed of the furloughed men coming and going, or of details made from the local garrisons to the rear.

For the transfer of large armies by rail, from one theatre of action to another by the rear—the cases of the transfer of the Eleventh and Twelfth Corps—Gen. Hooker, 30,000 men—from the East to Chattanooga, 1,192 miles in seven days, in the Fall of 1863; and that of the Army of the Ohio—Gen. Schofield, 15,000 men—from the Valley of the Tennessee to Washington, 1,400 miles in eleven days, en route to North Carolina, in January, 1865, are the best examples of which I have any knowledge, and reference to these is made in the Report of the Secretary of War, Mr. Stanton, dated Nov. 22, 1865.

ENGINEER TROOPS.

Engineer troops attached to an army are habitually employed in supervising the construction of forts or field works of a nature more permanent than the lines used by the troops in motion, in repairing roads and in making bridges. I had several regiments of this kind that were most useful, but as a rule we used the infantry or employed parties of freedmen, who worked on the trenches at night while the soldiers slept, and these in turn rested by day. Habitually the repair of the railroad and its bridges was committed to hired laborers, like the English navvies, under the supervision of Col. W. W. Wright, a railroad engineer, who was in the military service at the time, and his successful labors were frequently referred to in the official reports of the time. For the passage of rivers, each

army corps had a pontoon train, with a detachment of engineers, and on reaching a river the leading division was charged with the labor of putting it down. Generally the single pontoon train could provide for 900 feet of bridge, which sufficed; but when the rivers were very wide two such trains would be brought together, or the single train was supplemented with a trestle bridge, or bridges made on crib work, and out of timber found near the place. The pontoons in general use were skeleton frames, made with a hinge, so as to fold back and constitute a wagon body. In this same wagon were carried the cotton canvas cover, the anchor and chains, and a due proportion of the balks, chesess and lashings. All the troops became very familiar with their mechanism and use, and we were rarely delayed by reason of a river, however broad. I saw, recently, in Aldershot, England, a very complete pontoon train, the boats being sheathed with wood and felt, made very light, but I think these were more liable to chafing and damage in rough handling than were our less expensive and rougher boats. On the whole I would prefer the skeleton frame and canvas cover to any style of pontoon that I have seen.

THE SCRAP HEAP.

A Pontoon Bridge.

An exchange gives the following description of the pontoon bridge across the Mississippi at Prairie du Chien:

"The river between Prairie du Chien, Wis., and North McGregor, Ia., is divided into two branches by an island. The eastern (or Prairie du Chien) channel is used solely by the large steamers of the different packet lines; the western (or North McGregor) channel is exclusively the waterway chosen by rafts. These towns are the terminal points of the Milwaukee & St. Paul Railroad on the Mississippi River, and the object of the bridge was to connect them.

"The bridge is constructed on piles driven into the bed of the river, upon which rests a single railroad track. The length of the bridge measured upon this track is 7,200 feet from one shore to the other. There are two pontoon draws. The one over the eastern channel consists of three pontoons, connected lengthwise firmly, and representing a distance of 396 feet; these pontoons are each 28 feet beam, 5 feet height of side, and 10 inches draught of water. The draw over the western channel consists of but one pontoon, having a length of 408 feet, breadth of 28 feet, height of 4½ feet, and draft of 11 inches. When trains are passing over the draft of both draws increases to about 18 inches. The varying height of the planes between the pile bridge and the pontoons is overcome by aprons or movable tracks, which are adjusted by means of powerful screws and movable blocks, operated by men who are stationed on the pontoons for other purposes, thereby involving no extra labor or expense. The connection between the ends of this apron and the track on the bridge is a simple device, counterbalanced by equal weights, so that one man clamps and unclamps the end of the pontoon when swung into or out of position.

"The closing and opening of each draw is effected by a small engine of 20 horse power, working a simple winch, round which is wound a chain. The extremities of this chain are secured to clusters of piles above and below the draws, so situated as to give it a diagonal lead across the river. The draw opens with the current in one minute, and closes against it in three minutes, without showing any undue strain or requiring the application of more than one-fourth the power of the engine."

Railroad Manufactures.

The Rensselaer Rail Mills at Troy, N. Y., began work, September 21, on a large order for Bessemer steel rails.

The Marietta (O.) Iron Works are about to begin work on an order for rails for a Utah line.

The steel mill of the Nashua (N. H.) Iron & Steel Company was started August 31, after having been idle a little over four months.

The New Haven (Conn.) Car Company is building some sleeping coaches for the European & North American road.

The Wason Car Company at Brightwood, near Springfield, Mass., has been discharging some men and is running its shops half time, except the foundry, which is still on full time.

The Washburn Car Wheel Company at Worcester, Mass., has been increasing the number of men and has large orders on hand.

The project of establishing locomotive works at Marshall, Mich., has been revived, and arrangements for the organization of a company are nearly completed.

A contract for an iron bridge of 90 feet span across McLaughlin's Run, near Pittsburgh, Pa., was let recently to the Canton Iron Bridge Company at \$18.81 per foot.

The Baltimore Bridge Company.

This company has now in its shops four spans of 148 feet each for Grand River Bridge, St. Louis, Kansas City & Northern road; six spans varying from 60 to 200 feet for the Chimbote narrow-gauge road in Peru; four spans, 255 feet each, for the Susquehanna Bridge on the Philadelphia, Wilmington & Baltimore; one span, 105 feet double track, for the Erie; five spans, from 40 to 150 feet, for a bridge over the Brandywine River for Dupont's powder works; one span of 104 feet for the Atlantic, Mississippi & Ohio; and one span of 104 feet for the Lima & Oroya road in Peru. This is in all 3,180 lineal feet under contract, and the company has heretofore built 55,710 lineal feet of bridging since beginning business (as Smith, Latrobe & Co.) in 1866.

British Rail Exports.

The board of Trade returns for August show that the exports of railroad iron of all sorts were:

	1873.	Value.	1874.	Value.
Total Exports.....	73,906	2,986,716	71,032	2,845,124
August.....	7,390	298,671	7,103	284,512
Eight months ending with August.....	490,456	6,590,557	576,196	7,394,782

Exports to United States:

	1873.	Value.	1874.	Value.
August.....	6,937	99,788	5,900	80,161
Eight months ending with August.....	141,330	1,829,551	78,531	1,086,020

For the month there is a decrease of nearly 4 per cent. in the amount and of 14 per cent. in the value, and for the eight months an increase of 15 per cent. in the amount and of 11 per cent. in the value of the total exports. In the exports of this country there is a decrease of 14 per cent. in the amount and of 19 per cent. in the value for August, and a decrease of 45 per cent. in the amount and of 40 per cent. in value.

—All people who have had business to transact at the headquarters of operation of the Michigan Central Railroad will regret to learn that Mr. Homer E. Sargent, the General Superintendent for the past seven years, has resigned his position. Mr. Sargent began his service as a railroad man in 1845, on the Boston & Worcester (now Boston & Albany) Railroad, as station agent at Worcester. Afterwards for two years he was General Freight Agent, having charge of the through freight over the Western Railroad as well as the Boston & Worcester. In 1858 he went to Chicago as General Freight Agent of the Michigan Central, and on the resignation of R. N. Rice in 1867 he was made General Superintendent. It is understood that Mr. Wm. B. Strong, just appointed Assistant Superintendent of this road, will succeed Mr. Sargent, who will remain for some weeks in the service of the company.



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Editorial Announcements.

Addresses.—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed EDITOR RAILROAD GAZETTE.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN OPINIONS, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

THE GROWTH AND VALUE OF WESTERN TRAFFIC.

The Investigating Committee of the Pennsylvania Railroad Company has made several studies concerning the property of the company and its traffic of an extremely important nature, indispensably necessary to an intelligent management of that great and complicated property, or, indeed, of any railroad not exceptionally simple in its traffic, yet such a study, we fear, as is not often made, and is certainly very rarely published. Moreover, it is a work which requires such a stock of information concerning the geography, productions, resources and tendencies of the country and of special districts of it as is rare to find, and a special knowledge of the unrecognized or half-recognized science of the economics of transportation, without which great fullness of information will not prevent gross errors in conclusions. The Committee seems to have had at hand fuller and more minute information of the details of the traffic of the Pennsylvania Railroad Company than has been permitted to see the light heretofore, and on the whole it has shown a good appreciation of the facts and skill in presenting them. None the less has it made considerable errors in its conclusions.

To the railroad world generally, that is, to those not interested directly in the securities of the Pennsylvania Railroad Company, who will value the report according to the information which it contributes concerning railroad administration and the business of railroad transportation, probably the most important part of the report is "Article IV," "An Inquiry into the Policy, Groups, and Results of all the Railways and Canals owned or controlled by the Pennsylvania Railroad Company," which occupies seventy pages, or about one-third of the whole report. And doubtless the most interesting and valuable part of this Article IV, is that relating to the "Western Group," as the Committee calls the railroads west of Pittsburgh controlled by the Pennsylvania Railroad Company. This part we publish in this number of our paper, and we bespeak for it careful perusal by all who are in any way interested in Western production and traffic. What we have to say here will be chiefly based upon or in criticism of this part of the report.

The inquiry concerning this "Western Group" was doubtless made for the purpose of deciding whether and how far the company's managers had been justified in acquiring control, mainly by incurring permanent obligations, of this vast network of railroads, including 3,025

miles, and occupying the territory between the Ohio on the south and the lakes on the north, from the Allegheny on the east to the Mississippi on the west. After describing the roads, their gross and net earnings, and their returns to the Pennsylvania Railroad Company, and finding that there was a loss to that company of \$700,000, excess of rentals over net earnings, and that expenditures for permanent improvements were reported as included in expenses to the amount of about \$1,725,000, the Committee proceeds to consider the prospects of these Western roads, which necessarily leads it to a discussion of the prospects of the West itself, on whose production and growth the traffic of these railroads depends.

The report, however, nowhere defines the "West," and some things which it says which are absolutely true of Utah and Colorado, and even of Kansas and Nebraska, are not at all true of Illinois and Wisconsin, nor even of Missouri, Iowa and Minnesota. As comparatively but a small part of the cultivable portion of the West lies west of Minnesota and the Missouri River, the sentence passed on "Western" capacity for profitable production is of quite limited application if the latter is meant as the West, while time has long ago proved its inapplicability to the States bordering the Mississippi, as reasonably intelligent Americans ought to know.

But whatever the Committee may mean by the West (and in one place they speak of Ohio, Indiana and Illinois as if belonging to it), it concludes that this section cannot profitably produce grain, etc., for export to the East and Europe, owing to its distance from the consumers; that its growth has been unnatural and cannot continue, except so far as the population is diverted from agriculture to manufactures, and that until manufacturing industry is more extended there the railroads cannot hope for much improvement in earnings.

All depends on the boundary between the East and the West. If the Committee mean that part of the country in which Pennsylvania controls lines, their statements are far from the truth, and there is no better or completer proof possible than the progress in wealth and population of these States. Industry is not experimental there. The youngest has been settled forty years; for the early part of the time almost the only business was agriculture; prices were not higher than now; the cost of transportation was incomparably greater; and the result has been a growth in wealth scarcely paralleled in the world. Any man who saw Northern Illinois thirty years ago or Eastern Iowa twenty years ago and knows their condition now need not be told that wealth has come out of the soil. The evidences of it are everywhere, and the average condition of the farmers is probably not excelled in any older State in the country. When the committee say of the great Western cities, "we find those cities have grown up and become rich as the home of the middle-man between the producer and the consumer, the manufacturer and the wearer. These men have fixed the prices of and speculated on the productions of the farmer, and have heretofore made large profits on the necessities of life to him. It is, to some extent, reproducing the history of every purely agricultural country in the old world, with cities of great wealth, and surrounding millions of producers in great poverty," they talk nonsense. They can find no "surrounding millions of producers in great poverty" about Cincinnati, St. Louis, Chicago and Milwaukee. On the contrary, the farmers will compare favorably with farmers anywhere else in this country in their incomes, while the lesser wealth per inhabitant compared with Eastern States is due to the lack of accumulated capital in the hands of merchants, manufacturers, professional men, etc. The cities and towns are poorer than in the East, but the farmers' incomes are not smaller. Indeed, what better proof can there be that agricultural industry is profitable in these States than the fact that they have been peopled chiefly by farmers from the East; that after more than a generation of experience there continues to be a current of emigrating farmers from the East to the West, but no backward current?

The committee say:

"We have thus these three facts before us:

"1. That the tendency of prices for the products of the farm is downward;

"2. That the cost of transportation cannot be safely reduced below existing rates;

"3. That the products of the farm from the far West will not, at the present rates, profitably bear railroad transportation to the East and pay the railroad company a fair price for its carriage, or the farmer a just reward for his labor and capital invested."

Now, we venture to deny flatly statements 1 and 2, while we cannot accept the third without explanation or modification. Prices of some farm products have been falling for two or three years, but the beginning of that period was the culminating point of an era of high prices, and grain has often been lower than it is now, when there has been a coincidence of plentiful harvests the world over. The abnormal prices during the war, distorted further by a currency worth sometimes less than forty cents on the dollar, is not a safe basis to calculate from. Prices were lower before the war, and before the war a large part of the West was well to do and supported several railroads handsomely. There is, of course, a possibility of over-

production which, in the case of corn (not properly a breadstuff), sometimes becomes an actuality, but there is not now a great deal of productive grain land outside of the settled districts of the United States, though there is an immense area inside of these districts which has never yet been plowed.

The second statement is that the cost of transportation cannot be safely reduced below existing rates. That depends. If traffic continues to increase and railroads are not multiplied, it can be and will be. It has been reduced nearly every year, as traffic has grown, without, in most cases, reducing the profits of railroads which have ever been fairly profitable, and it could have been and doubtless would have been reduced still further if it had not been for the great and needless and harmful multiplication of railroads, not in the wilderness, where they hurt no one but themselves, but in the well peopled districts already sufficiently supplied with railroads. This fact the Committee neglects, yet it more than anything else has made new Western railroads (and old Ohio railroads) unprofitable. There have been too many of them for the work. Railroads twenty-five or thirty miles apart are abundantly sufficient to carry off all the produce of a fertile and well peopled and cultivated farming district, and it is doubtful whether any more farm produce will be raised in such a country if the railroads are nearer together. Then when we have railroads so multiplied as to have on an average no more than six or eight square miles of land to support a mile of road, some of them must starve to death in an agricultural country, and those which survive and prosper evidently must charge higher rates on that part of the traffic which they get than they would need to if they got the whole. Indeed, elsewhere in their report, the Committee goes to considerable pains to show that a large additional traffic can be taken on its road at a comparatively small addition to the expense.

As to the third statement, that farm products of the far West cannot bear the cost of railroad transportation to the east, it is quite true, if the far West is far enough west, and if "products of the farm" means grain. And it is a statement which needed making very badly. It is doubtful whether anything is made by the railroad companies on the grain carried from Nebraska and Kansas to Chicago, or whether, unless the water rate from Chicago is kept very low (as it may be by the opening of the St. Lawrence or other cheap water route) they will be able to charge a profitable rate on such products hereafter. But this is not true of cattle, which are the chief export of Kansas, and bear transportation all the way from Texas, while wool can be and is carried entirely across the Continent, and forms now the largest item in the through eastward shipments of the Pacific railroads. Of all produce, however, it should be said that it need not go all the way east by rail. The lakes are ready to receive it all, and do receive most of it; and although shipments by this route do not add directly to the income of the Pennsylvania Railroad's western connections, they do indirectly, and anything which makes farming profitable in the West tends to make these roads profitable. Still, this statement of the Committee, which comes in a shape to attract general attention, will do good. It is too true that the world generally, including a great many railroad men who ought to know better, has taken it for granted that when access is once given by a railroad to any part of our unoccupied territories the only or chief obstacle to its rapid growth to a condition like that of Ohio, Illinois or Eastern Iowa is removed. No sufficient consideration has been given to the cost of transportation, not even by the farmers themselves, who, however, have learned something already and do not now flock to the "borders" as they once did. They learn, too, to adjust their industry to the circumstances, and the more Western settlers think of nothing but cattle and sheep as products for export.

The Committee seems to have felt one fact—the probability, or rather certainty, of a great and somewhat sudden decrease in the rate of Western growth, and to have interpreted this as a total arrest of growth or even decline, for which it has sought an explanation; and indeed a sudden decrease in the rate of growth has often and in many respects the effect of an arrest or a positive decline in production, temporarily. When a country doubles its population and quadruples its wealth every ten years, as has been the case with most Western States in the early years of their settlement, business enterprises are likely to be undertaken and conducted not merely in proportion to the existing demand, but to the expected increase in demand caused by the rapid growth of the country. This is true of railroads, perhaps, than of any other enterprises, and with them there is rarely any allowance made for a decrease in the rate of growth. But when the fertile lands of a new country are mostly occupied and utilized to some extent, there is and there must be inevitably a great decrease in the rate of increase of agricultural population and production. And this time comes much sooner than most people think.

There are many counties in Illinois in which the agricultural population did not increase at all between 1860 and 1870, and some in which there was no increase between

1850 and 1860. Some of these counties doubled their population, but the increase was wholly in the towns. There are vast areas not plowed in such districts, but so there are in New York and Pennsylvania, and the unplowed land is utilized for grazing in almost all cases. Every railroad builder and every merchant who estimates a doubling of the grain production of an Illinois or Iowa district in the next five years because it doubled in the last five, and a repetition of this progress indefinitely, is doomed to disappointment. Such people have been already disappointed in scores of instances. Still there has been an increase of production and a rapid one, only not so rapid as at first was counted on. This is the fate of Western cities. They grow tremendously in their early years, and when the fertile land of the country tributary to them is pretty fully occupied, their rate of growth falls off greatly, and though it may still be twice as great as that of most Eastern cities, there is great disappointment at the result. The growth of non-agricultural industries under normal circumstances cannot be so rapid, though they may and usually do in no very long time surpass in the aggregate the agricultural industry. Even in Illinois not quite half the population is engaged in farming.

The whole discussion of this subject in the report is intended as an inquiry into the probable future value of the "Western Group" of the Pennsylvania's tributaries, and into the justification of the policy in obtaining them. As they are not profitable in themselves, on the whole, to the lessee, their value depends on their contribution of profitable traffic to the Pennsylvania Railroad itself. This subject is discussed at the conclusion of the part of the report which we print, but very inaccurately, we believe. The total amount of and receipts from through traffic are examined, and the conclusion reached that the profit from it is a trifle less than 10 per cent. on the portion of the capital employed for this part of the traffic. The basis of this estimate is that the average expense per ton per mile on the through traffic is 0.7 cent against an average for all traffic of 0.857 cent. We do not believe that this reduction of about one-sixth is enough. The average haul of the local freight of the road in 1873 was less than 110 miles, so that for 356 ton miles of local freight there were about $3\frac{1}{2}$ receiving and as many delivering expenses, or seven terminal expenses for a ton mileage equal to the length of the road. Now not only does the through freight have a smaller proportion of terminal charges, but most of it has none at all, these falling at one end on the "Western Group" of the Pennsylvania's connections, and at the other on the New Jersey leased lines. This is a peculiarity of the position of the Pennsylvania Railroad. Except for eastward traffic delivered in Philadelphia and westward traffic delivered in Pittsburgh to the consignees, it is exempt from terminal expenses—the expenses of receiving and delivering and soliciting freight. All this is aside from whatever economy there may be in long hauls of freight, which is considerable, and is not counterbalanced by the excess of through freight eastward, because there is a similar excess of local freight in the same direction.

Again, the Committee neglects to consider the effect, present and future, of these Western connections on the company's local traffic. Pennsylvania industries find a market for a very large part of their products in the districts to which these roads lead, and the connection is better and cheaper because they are controlled by the Pennsylvania Railroad Company. If the Fort Wayne road had been acquired by the Erie and the Pan-Handle by the Baltimore & Ohio, the Pennsylvania would have been deprived of a large amount of its present local traffic. The amount of this we can only conjecture, but it was enough to have some weight in deciding for the leases.

But, more than all, the Committee assumes that the through traffic requires an investment of capital in the road in proportion to its amount—a fallacy which the report itself exposes in another place. The through tonnage and passenger mileage is about equivalent to 31 per cent. of the total, and the Committee charges it with the use of one-third of the capital invested in the road. In estimating the advantage of such traffic to the company it should be charged only with the use of that amount of capital necessary to enable the road to conduct this traffic in addition to the other traffic. Not ten per cent. addition to the capital invested in the road is necessary to enable it to conduct an increase of 31 per cent. in traffic, especially if it is all through traffic. On page 109 of the report it is shown that an increase of less than 60 per cent. in the capital invested in this road has enabled it to carry nearly 230 per cent. more freight, and at this rate a gain of 31 per cent. of traffic should be charged with the use of less than one-twelfth of the whole capital. For if 60 per cent. addition to the capital enabled the road to carry 230 per cent. more traffic, on an average an addition of 1 per cent. to traffic has required an addition of but 0.26 per cent. to the capital, and an addition of 31 per cent. to the traffic necessitates an increase of $31 \times 0.26 = 8.1$ per cent. to the capital, which becomes 108.1 where before it was 100.

Now 8.1, the capital properly chargeable to the 31 per cent. of additional traffic, is $7\frac{1}{2}$ per cent. of 108.1, the total capital at the time the additional freight is carried. Taking this as a basis, the through freight of the Pennsylvania Railroad in 1873 required but \$4,000,000 of the company's capital, and the profit on it was 44 per cent. of that capital, instead of less than 10 per cent. on \$17,800,000, as the Committee has it.

The Committee's judgment on the present importance and probable growth of Western traffic, and of its value to the Pennsylvania Railroad, is likely to be widely read and accepted by many, especially in the East and in Europe. Therefore, believing it to be based on errors of fact and false principles in many of its features, we have thought it worthy of critical examination at considerable length. We find it very suggestive and in many ways valuable, which makes it the more necessary that its errors be exposed. Very suggestive, too, are some other parts of the report, which we hope to copy and comment on hereafter, and as a whole it appears to be one of the most valuable of recent contributions to our knowledge of the science and art of railroad administration.

THE GRAIN MOVEMENT.

The time since the harvesting of the wheat crop in the Northwest has been long enough to permit a large part of it to be marketed, and in ordinary seasons more is shipped in September and October than during any other two months of the year. Last year the movement was at least three weeks earlier than usual, and the August traffic was nearly equal to that customary in September. After the 15th of September the movement was made abnormal by the panic. We will therefore compare the movement for the period for the fifty days ending with the 19th.

From August 1 to September 19, the crop movement at the Western lake ports (Chicago, Milwaukee, Duluth, Detroit, Toledo and Cleveland) and St. Louis for the past two years compares as follows:

	1873.	1873.	
Flour, bbls.....	700,325	814,081	Dec. 14 per cent.
Wheat, bush.....	12,719,936	18,854,338	Dec. 33 " "
Oats, bush.....	8,329,490	15,222,594	Dec. 45 " "
Rye, bush.....	5,307,939	9,046,131	Dec. 77 " "
Barley, bush.....	811,055	1,145,691	Dec. 29 " "
Buckwheat, bush.....	275,084	481,613	Dec. 42 " "
Total, bush.....	27,443,795	40,708,347	Dec. 32½ " "

Thus we have the enormous decrease of one-third in the bulk of flour and grain handled at these chief primary grain markets. In considering it, we should remember that the movement last year was large without example, the grain being marketed unusually early. But this year's movement is not only smaller than last year, but also smaller than for the two years previous, when the movement was:

1872.....	33,356,619 bush. = 22 per cent. more than in 1874
1871.....	37,538,037 bush. = 38½ " "

This period, it will be noted, closed with the first day of last year's panic, which soon affected the grain movement unfavorably. It is a very unfavorable showing for railroad traffic of almost all kinds in the North, for on the receipts for the grain crop depend very largely activity in trade and manufactures and the general traffic of railroads, and the smallness of this movement is made still more unfavorable by the much lower price of the chief staples, flour and wheat. Taking the New York prices at the close of the period and computing the value of the shipments at those rates, we have:

	Price.		Value of	
	1873.	1874.	Western receipts.	
	1873.	1874.	1873.	1874.
Flour (extra spring).....	\$7.00	\$5.50	\$5,698,567	\$3,861,787
Wheat (No. 2 spring).....	1.50	1.16	28,281,507	14,755,125
Corn (Western mixed).....	0.66	0.57	10,046,913	8,079,306
Oats.....	0.52	0.66	1,563,158	2,513,234
Total.....			\$45,590,770	\$29,200,052

We have not included barley and rye in our calculations, because not only are the quantities of these comparatively insignificant but they have not changed much in price.

These figures are a sufficient explanation of any dullness of trade in the West, the small purchases of goods and the stagnation in the lumber trade. The decrease in value of the grain crops marketed during these fifty days is no less than \$16,000,000, which is more than 36 per cent.

We suppose that there is no doubt that the Northwest has more wheat to sell this fall than it had last; but aside from the decrease of value from the decrease of price, which makes all other trade and traffic dull, is this further effect, that the farmers withhold their wheat in hopes of better prices, and so we have this year's movement for this period no less than a third smaller than last year's, notwithstanding the fact that the cost of transportation to the sea and across it as well is lower than ever known before—is, indeed, unprofitably low to all the carriers on lake, canal and ocean. There is but one cheering conclusion to be drawn from these facts, and that is the good financial condition of the farmers. If they had been generally hard pressed by debts or otherwise, they could not possibly have held back their wheat in this remarkable way. There is therefore good reason to believe that when they do finally market their grain, they will become free buyers.

As for the corn movement, the decrease of course cannot be explained in that way. An increase of 50 per cent.

ought to have a tendency to draw out stocks very closely. And this doubtless it has done. There has not been much corn shipped because it was not in the country to ship, and on the 19th of September the "visible supply" was less than half as great in 1874 as in 1873. Of course we are approaching the end of last year's corn crop, and there has been very little information published with regard to this year's; but there can be no doubt that the promise of July and early August was not fulfilled, and that the drought of the latter month has made the yield light in large districts. The strongest evidence of a light crop, however, is the high price in the face of the great decline in wheat. Now in many respects the corn crop is more important than the wheat. To a very slight extent does it come in competition with the product of other countries, and the marketing of hogs depends chiefly and that of cattle largely on the plentifulness of the crop of corn. If the country has an immense one, the gain is chiefly ours: whereas with wheat we may find Europe nearly able to supply itself and the market for ours immensely depressed. Corn is to a very limited extent marketed as a breadstuff: domestic animals and distillers probably consume ninety-nine hundredths of the crop, and all but a small fraction of the entire crop is consumed in this country, enriching the consumer if by chance it should be too low to profit the producer, and affording common carriers a traffic in many forms before the final consumption. The loss by a very small corn crop might much more than balance the gain by an unusually large wheat crop; but we have no sufficient information to enable us to compare the probable crops of the two years, and at current prices there might be a large decrease in the crops with no decrease in value.

For the time since September 19 we have only the Chicago receipts and shipments as yet. These show a decrease of 25 per cent. in flour, 45 per cent. in wheat, 17 per cent. in corn, an increase of 26 per cent. in oats, and 6 per cent. in hogs, and nearly 1,300 per cent. in cattle; but traffic was not much affected by the panic during this first week last year. Afterward for several weeks there was a considerable falling off, but the movement revived by the end of October, and for the rest of the year was unusual heavy. Unless there is some such revival this year our railroads will have a great deal of idle rolling stock this fall.

Cotton Transportation.

The cotton product and movement of the crop year ending with August are carefully reported and analyzed by the *Commercial and Financial Chronicle*, an authority on this subject. This crop, though not a bulky one, is yet one of controlling importance to the transportation interests in most of the Southern States. It gives the chief freight to tidewater and the North, and according as the crop is large or small and its price high or low are most other kinds of business governed in these States. If there is a good crop and a good price for it, there is a great deal of traveling and a great deal of buying and shipping to the plantations. If the crop is very small or the price very low, the Southern people buy very little and travel very little, and they are a people, contrary to a not uncommon opinion, who can live on as nearly next to nothing as any other natives of this country except the aborigines themselves, the fluctuating nature of their great staple accustoming them to great variations in their yearly incomes.

Perhaps not the least interesting fact connected with the cotton statistics is this, that the cotton States have fully recovered their old productiveness. The crop of last year was equaled but once before the war, and the average of the past five years (3,700,000 bales) exceeds that of the six years before the war (3,600,000 bales); and this comparison is quite fair, because during that period before the war cotton production was increasing very slowly, that of 1855-56 being very nearly equal to the average of the six years ending with 1860-61. The average of the four years succeeding the war, when the country was impoverished and labor was utterly demoralized, was only 2,300,000 bales. Probably there is not so great a profit now as before the war; still the increase in the rate of production would seem to indicate as much, as it is quite as rapid now as for several years before the war.

As we have said before, there has been quite a revolution in cotton transportation since the ante-war days. Then the numerous navigable streams intersecting the cotton States maintained fleets of steamers which brought the largest part of the crop to the seaboard. Now, except on the Mississippi and its tributaries, the steamers have mostly disappeared, and the railroads take all the traffic. It is a traffic which they ought to be able to command, to be sure, the staple being valuable in proportion to its weight, and its distance from seaports being usually less than three hundred miles.

We have said that its weight did not of itself make this an important staple of transportation, and it certainly does not, compared with many other agricultural products, to say nothing of minerals. Last year's crop, for instance, had a weight of about 1,000,000 tons, which would have made 100,000 full car-loads. Now the wheat received

during the last crop year at either Chicago or Milwaukee weighed very nearly as much as this, while wheat is a subordinate staple in the district which ships at one of these cities. The lumber received at Chicago would much more than balance the cotton of the whole country; and these articles as well as other grains and live stock are carried average distances much greater than cotton goes. As an article of export, however, cotton takes a higher rank. The statistics show that a little more than two-thirds of the last crop was exported, while nothing like so large a proportion of any other leading staple produced here ever leaves the country. To the ocean vessels, therefore, cotton is nearly our most important cargo. Last year's exports of wheat exceeded it in weight largely, however, but last year's exports were unusually large.

Although the railroads have succeeded so well in absorbing the transportation of cotton from the plantations to the sea-board, they have as yet made only tolerable progress in carrying it over long rail routes from the cotton States to the home consumers or the distributing cities near them. Nearly one-third of the last crop was consumed in this country, but the shipments direct to northern manufacturers together with the rail receipts reported at Baltimore and ports further north were but 11½ per cent. of the crop, which, however is yet 42 per cent. of the northern consumption. In view of the high value of the article, and especially considering the fact that the bulk of the traffic on roads to the South is southward, it would seem that there is room for a great expansion of this traffic, as there has been of the grain traffic from the Northwest to the Eastern States. But the habits of trade have a great deal to do with this. The interior corn buyer in the East is able to order a car load of corn in Central Illinois and have it delivered at his door. The cotton manufacturer, we presume, would continue to buy his stock in New York and Boston even if all the cotton came by rail. A uniform and rigid inspection and classification of cotton throughout the South might change matters, perhaps, and permit the making of the exchange between the planter and the cotton-spinner with the minimum of handling and middlemen; but this is a matter in which the railroads can do very little. It is conceivable that cotton might be bought and held at the station nearest the planter by buyers having a central office, and that these, receiving an order for a definite quality from the mill in Massachusetts, would order it shipped through, so that there would be but one loading and unloading of the bales between Mississippi and Massachusetts. The break of gauge on the Southern border is something of an obstacle, but in these days of transfers from trucks to trucks, not a very serious one. The reports for the past two years show a considerable increase in the proportion of this through rail traffic. In 1872-73 it was 36 per cent. of the Northern consumption and 9½ per cent. of the total crop; the last year it was 42 per cent. of the Northern consumption and 11½ per cent. of the total crop. The crop being larger last year, the increase in amount of the cotton transported in this way was even larger than these figures indicate, the numbers of bales being 378,273 in 1872-73 and 489,534 in 1873-74, showing an increase of nearly 30 per cent.

The receipts of the different ports are likely to vary greatly from year to year with the condition of the crop in the districts which supply them. But there are no very great variations in the proportions of the crops received during the two years. New Orleans took a trifle less than 30 per cent. last year and about 31½ per cent. the year before; Mobile less than 7 per cent. last year and more than 8½ per cent. the year before; Texas ports (chiefly Galveston and Corpus Christi), 9½ per cent. last year and 8½ per cent. the previous year, the Gulf ports together receiving about 46 per cent. in 1873-74 against 48½ in 1872-73. The great bulk of their receipts go abroad. Savannah, Charleston and Norfolk are the other chief receiving ports, and the report shows that 15 per cent. of the receipts in 1873-74 and 15½ per cent. in 1872-73 were at Georgia ports, which is a little more than two-thirds of the receipts last year: 10½ per cent. in 1873-74 and 9½ in 1872-73 at South Carolina ports, which exported something more than half of its receipts last year; 12 per cent. of the receipts last year and 11 per cent. the year before at Virginia ports, which last year exported only 4 per cent. of its receipts. This shows that the supply for domestic consumption and for export from Northern ports aside from the rail receipts, comes almost entirely from the Atlantic receiving ports. The exports of Northern ports were 580,000 bales, which is 20 per cent. of the total exports. It appears from this that the Gulf States sell very little of their cotton in this country, and that they export it from their own ports. It is natural, of course, that our mills should get their supplies from the cotton districts nearest to them. As the only part of the country where cotton production is increasing rapidly is in Texas—most distant of all from the Northern mills—we may perhaps expect to see a larger and larger proportion of the product of the Atlantic States to be consumed by them, as their consumption increases, which will have a tendency to destroy the exports of these States, not by diminishing their trade, but

diverting the subjects of it from foreign to domestic consumption, while the rest of the world will more than ever go to the Gulf ports for its cotton. The railroads may modify this condition of trade somewhat, but there is not the same room for them to progress in cotton as in grain transportation, from the fact that most of the cotton must go to the sea for export, and that the sea is hardly anywhere more than 300 miles from it. The railroads have work enough before them in securing the carriage of cotton for domestic consumption, in which they have good chance of success; that for exportation will always be likely to seek the nearest sea-port where there is a good market, unless rail transportation becomes very cheap, when a slight advantage in a market may divert it.

The Centennial International Exposition.

The United States Centennial Commission has got fairly at work, and already invites applications for space in the exhibition to be opened in Philadelphia twenty-one months hence. And it urges intending exhibitors to make their applications as soon as possible, in order that the Commission may know how much space it can assign to foreign nations. As the exhibition will offer a unique opportunity for making known our resources to foreign nations and thus attracting both population and capital from abroad, it is proposed to give special prominence to collections illustrating the resources of different sections of the country, such as grain and other agricultural products, minerals, etc. As these collections cannot usually be made by individuals, and as often an organization must be formed in order to provide them, steps cannot be taken too soon to do this work.

The railroad companies of the country may do much work of this kind. The land-owners alone are more interested in securing the development of the districts through which they run, and not a few of the Western companies are the largest land-owners. But it is not easy to form a complete organization of land-owners, while a railroad company has agents in every section of its districts, and has (or ought to have) intelligent officers through whose directions these agents may easily collect a museum which will well illustrate the resources and productions of the country. And it is not the land-grant railroad alone which is interested in such work; every railroad whose field is not already fully developed finds its profit in whatever increases the population, production and wealth of the district through which it runs; and we may reasonably expect that among our visitors in 1876 will be many who command large capital and will be willing to invest some of it in promising American industries. Such work might be done in co-operation with State authorities, or without it, and the railroad company be very efficient either as principal or assistant.

With regard to the exhibition of railroad materials, equipment, etc., it seems to us that our manufacturers and railroad men ought to spare no pains to make this department complete, so that it may illustrate fully and minutely that peculiar instrument of transportation, the American railroad, which is in so many respects different from the European, and for a country like ours, as we think we may safely say, vastly superior. We do not imagine that we shall have great opportunities for comparison with the European system at that exhibition. People exhibit on such occasions, for the most part, in the hope of getting customers, and we presume that Europeans will hardly hope to tempt us to buy their locomotives, cars, or other appliances, though they may supply us with much of the material of which we make them. But the opportunity will be unequalled for displaying to the world our system and its advantages, and demonstrating its fitness for the more thinly populated and rapidly growing parts of the world, including, we believe, most countries not already well supplied with railroads. And it is well worth while to make a "missionary effort" of this kind to proselyte the outlying nations and make converts to the American railroad system. For to those who adopt this system we shall supply a large part of the rolling stock and machinery by which it is worked. Already, we believe, our locomotive builders can supply motive power quite as cheaply as any European manufacturers, and they and our car-builders have a considerable market for their products in South America. We should be able to extend this demand immensely, and we shall if we demonstrate to those countries which cannot afford the costly European railroad the cheapness and efficiency and the remarkable capacity for development which are characteristic features of the American railroad. The railroad department of the Centennial Exposition may be made to demonstrate this quite completely, we believe, and that before the eyes of numerous representatives of those peoples that will profit most by following our example.

Of course this department may be of very great value to us, if no foreigner should see it. There has never been in this country, we believe, anything like a complete exhibition of railroad materials and machinery. This gives an opportunity to form within the Centennial Exhibition what we may call a great "railroad fair," in which may be compared, side by side, all the manifold apparatus and materials which our railroads use. To the manufacturers and dealers of course the occasion may be directly profitable, and to the railroad men who consume the wares quite as much so. Both should use all efforts to render this part of the exhibition worthy of the great railroad interest of the country as well as of the occasion.

The Festiniog Railway.

A great deal was said about this little railroad a few years ago, but it seems to have been neglected of late, and the curiosity concerning it which was so whetted then is not gratified. The Railway Returns of the British Board of Trade, for 1873, however, show that it still exists and carries freight and passen-

gers; and in order that the friends of the narrow gauge may be able to quote its latest workings when they fortify their arguments with it, we present the following abstract of the report, which is for the year 1873:

Length of road, single track, 29½ in. gauge..... 14 miles.
Capital cost:
Paid up common stock (4 per cent. dividend in 1873)..... \$430,930
Preferred stock (5 per cent. dividend in 1873)..... 175,000
Loans (bearing 5 per cent. interest)..... 60,000

Total cost (\$47,566 per mile)..... \$665,000
Besides dividends and interest charges, the company paid in 1873 \$6,760 for "way leave," and \$1,355 for rent of lands, and adding this to the interest and dividends we have \$37,102, which is 5.57 per cent. of the cost of the road.

The number of passengers carried and receipts therefrom were:

	Number.	Receipts.
First class.....	4,495	\$1,360
Second class.....	3,562	1,320
Third class.....	120,577	17,730
	128,634	\$20,390

The tons of freight carried were:

	Tons.	Receipts.
Minerals.....	124,830	\$89,560
General merchandise.....	18,845	17,800
	143,675	\$99,860

Freight and passenger earnings..... \$119,650
From other sources..... 2,915

Total earnings..... \$122,535
Working expenses (59.63 per cent.)..... \$73,070

Net receipts..... \$49,465

The average charges per mile were, counting each ton and passenger as passing over the entire line:

	First-class passenger.....	Second-class ".....	Third-class ".....	Ton of minerals.....	Ton of merchandise.....
	3.69 cts.	2.44 "	1.05 "	4.62 cts.	6.74 "

The ordinary mineral rates in England are from 1½ to 2 cents per mile.

If the charges for the different subjects of transportation are in proportion to the cost, it cost this road in 1873 2.77 cents to move a ton of minerals a mile, and 4.04 cents to carry a ton of merchandise that distance.

Final Decision Against the Narrow Gauge for Main Lines in India.

From official correspondence laid before the English House of Commons, and ordered to be printed May 21, 1874, relating to the subject of break of gauge in India, it appears (p. 12) that the number of miles of railroad of the 5 ft. 6 in. gauge constructed in India up to June, 1873, was 5,340; and of narrow or metre gauge (3 ft. 3½ in.), 472 miles.

This effectually disposes of the statement, which has been widely circulated, that a vast extent of narrow-gauge railroad (even 10,000 miles has been mentioned) had been already constructed in India.

Referring to this important subject of break of gauge in India, the London Times of September 9, 1874, has the following:

"Indian Railways.—Mr. W. P. Andrew mentions, as was stated by us yesterday, that the narrow gauge has not been adopted for the Indus Valley line from Kotree to Mooltan, and for the line from Lahore to Peshawar. Both these lines are being carried out on the standard Indian gauge of 5 ft. 6 in. The Return referred to in our article of Monday ends with the final minutes of the Duke of Argyll, late Secretary of State for India, dated the 17th and 20th of February last; but the really final decision was not arrived at until some months after, and that decision was that there should be no break of gauge in the main lines of India."

Record of New Railroad Construction.

This number of the RAILROAD GAZETTE has information of the laying of track on new railroads as follows:

Nashua & Rochester.—Extended from Lee, N. H., southward 28 miles to a point within five miles of Nashua.
Lowell & Andover.—Completed from Ballardville, Mass., west 6 miles.
Rochester, Nunda & Pennsylvania.—Extended from Tuscarora north 3 miles to Nunda, N. Y.
Minnesota & Northwestern.—Track is laid from Mankato south by east 20 miles to Good Thunder's Ford.

This is a total of 57 miles of new railroad, making 1,082 miles completed in the United States in 1874, against 2,691 miles reported for the same period in 1873, and 4,765 in 1872.

THE NEW LOANS ISSUED, according to the Belgian *Moniteur des Interets Materiel*, during the first half of 1874 amounted, in all the civilized world, to about \$474,000,000, of which \$116,500,000 were government and municipal, \$25,400,000 for banks and other credit establishments, and \$332,700,000 for railroads and manufacturing companies. This is a trifle more than the total for the preceding half year, though not nearly as much as the loans issued during the first half of 1873. Of the whole amount issued in the last half year, Great Britain, Russia and America took 71 per cent., the American loans being \$39,590,000 for governments and cities, and \$98,150,000 for railroad and manufacturing companies. The loans for the latter purpose were a seventh greater for Great Britain (chiefly her colonies) than America. Russia, which stands next in amount to America, took but little more than one-third as much. For some years we have been taking a very large proportion of the world's spare capital to make and improve our railroads, which represent the savings of all Europe. And, as we are one of the two or three great growing countries, these savings are likely to continue to come here whenever we can present safe and profitable investments to absorb them, though distrust rules in many of the leading money markets now and may for some time.

MR. ISAAC CRAIG BUCKNOUT, Chief Engineer of the New York & Harlem Railroad and chief of the board of engineers of the Fourth Avenue Improvement, died at his residence in White Plains, N. Y., September 27, in the 44th year of his age. Mr.

Buckhout commenced his training for engineering work as a rodman in 1848 under Allan Campbell, then Engineer and afterwards President of the Harlem road. He was subsequently employed in Paterson, N. J., under Col. J. W. Allen, afterwards a well-known engineer, and then became Engineer of the water-works of that city. Returning to New York he became a city surveyor and finally entered the service of the Harlem road in 1853. He was made Chief Engineer in 1857 and Superintendent in 1863, holding both positions until about a year ago, when he resigned the Superintendency to devote his whole time to his duties as Engineer. His great works by which he will be chiefly remembered were the Grand Central Depot in New York and the "Fourth Avenue Improvement," the name generally given to the new line from the Harlem River to Forty-second street. His death resulted from an acute attack of rheumatism ending in typhoid fever, which was undoubtedly brought on by overwork and exposure in superintending the important work of which he had charge. Mr. Buckhout was an active member of the American Society of Civil Engineers and was recently appointed a member of the Committee on Rapid Transit in New York, a subject with which he was peculiarly qualified to deal.

THE INSTITUTION OF CIVIL ENGINEERS of Great Britain presents as subjects for papers an unusual number connected with railroad construction and working. Perhaps the most interesting to American engineers is that "On the design, generally, of iron bridges of very large span, for railway traffic; and on the comparative merits of European and American wrought-iron railway bridges," which some of the American members of the institution ought to treat. "Communications of a complete and comprehensive character" are requested. Other subjects of special interest to railroad engineers are:

"On the construction of street tramways, the best means of adapting them for the conveyance of passenger and goods traffic, and the best method of avoiding evil and inconvenience to other carriages traveling on the same roads." "On viaducts and metallic arches of large span, considered with special reference to the strains resulting from changes in temperature, and structural provisions for reducing or eliminating such strains." "On the appliances and methods used for 'tunnel-driving,' rock-boring, and blasting in this country and abroad, with details of the cost and of the results attained." "On the permanent way of the railways of 1874, and the extent of its identity with the permanent way of 1864, in respect to the rails, fastenings and sleepers generally, with statistical tables showing the length of road laid with the double-headed chair rail and the flat-footed rail in different countries at the present time." "On the block system of signaling on railways, and on means of communication with trains in motion." "On sorting sidings for railway trains." "On the relative cost of the conveyance of coal by rail and by steamer."

A BAGGAGE-MASTER, whose soul has been vexed within him at the continual abuse heaped upon him and his fellows, has written a letter to an exchange to say that "if people would travel with trunks weighing no more than 100 pounds, there would be little reason to complain of damaged baggage. When trunks balancing four, six and even seven hundred pounds come down on baggage-men's arms, they must necessarily drop with some momentum. No man can continue to lift this heavy baggage and live."

There is some reason in this, and even the much-abused baggage smasher has a right to a hearing, and perhaps after all to public pity.

General Railroad News.

ELECTIONS AND APPOINTMENTS.

The McKean & Buffalo Railroad Company was organized in Buffalo, N. Y., September 23, by the election of the following directors: Byron D. Hamlin, Delano R. Hamlin, Smethport, Pa.; John W. Gale, Northeast, Pa.; John F. McPherson, Warren, Pa.; George J. Magee, Watkins, N. Y.; Wm. H. Glenay, J. C. Smith, Buffalo, N. Y. Byron D. Hamlin was chosen President; J. Condit Smith, Vice-President; John F. McPherson, Secretary; Walter T. Wilson, Treasurer.

Mr. McLeod, late Secretary to the General Freight Agent of the Erie, has been appointed General Manager of the Diamond East Freight line, which runs between Indianapolis to New York over the Indianapolis, Peru & Chicago, Toledo, Wabash & Western, Canada Southern and Erie roads.

Messrs. John Parks, of Medina, N. Y., and O. H. P. Archer, of New York (formerly Vice-President of the Erie), have been elected directors of the New Jersey Midland Railroad Company to fill vacancies.

The President of the United States has appointed Col. James Moore, of Elizabeth, N. J., a commissioner to examine and report on the condition of the Pacific railroads. Colonel Moore located the East Pennsylvania road and superintended its construction, was afterward Chief Engineer of the Central Railroad of New Jersey, and for some years past has been Consulting Engineer of that road.

The purchasers of the Queen Anne's & Kent Railroad at the recent sale have organized a new company by the same name by the election of the following directors: B. T. Biggs, J. B. Boyle, Joseph Bringham, E. Ingersoll, L. Kavanaugh, C. W. Levant, C. D. Roberts. The board elected B. T. Biggs, President, and Henry Irving, Superintendent and Treasurer.

At the annual meeting of the Massachusetts Valley Railroad Company at Stanstead, P. Q., September 2, the following officers were re-elected for the ensuing year: President, Albert Knight, Stanstead, P. Q.; Vice-President, R. N. Hall, Sherbrooke, P. Q.; Secretary and Treasurer, S. Foster, Stanstead, P. Q. The road is leased by the Connecticut & Passumpsic Rivers Company.

Mr. W. S. Mellon, late General Freight Agent of the Green Bay & Minnesota Railroad, has been appointed General Agent of the Winona & St. Peter road, in place of Mr. Mulliken, who was recently transferred to the Peninsula Division of the Chicago & Northwestern as superintendent. Mr. Mellon was formerly in the service of the Northwestern.

Mr. J. S. Newbury has been appointed a member of the Western Railroad Bureau and Commissioner for the Detroit district under the agreement made at the Saratoga Conference.

At the annual meeting of the New York, Providence & Boston Railroad Company in Providence, R. I., September 29, the old board of directors was re-elected, as follows: Henry Howard, Coventry, R. I.; Charles H. Salisbury, Providence, R. I.; John F. Dixon, Westerly, R. I.; A. S. Matthews, Stoning-

ton, Conn.; John A. Burnham, Boston, Mass.; Samuel D. Babcock, David S. Babcock, Wm. F. Cary, Jr., J. Boorman Johnston, George M. Miller, Henry Morgan, New York.

Mr. John Silson has been appointed General Freight Agent of the Marquette, Houghton & Ontonagon Railroad, in place of E. B. Gay, who has resigned.

The purchasers of the South Side Railroad at the recent foreclosure sale have organized the Southern Railroad Company of Long Island by the election of the following directors: Adolph Poppenhusen, Alfred L. Poppenhusen, Herman C. Poppenhusen, E. B. Hinsdale, Daniel D. Lord, Wm. Nicoll, Joseph J. O'Donohue, John D. Jones, Henry J. Scudder, Samuel B. Parsons, Charles A. Hoyt, Herman Funke, Effingham Sutton. The board elected Adolph Poppenhusen, President; E. B. Hinsdale, Vice-President; Alfred L. Poppenhusen, Secretary and Treasurer.

Mr. Edward Everett, of Avon, N. Y., is Engineer in charge of the preliminary surveys of the Ponagansett Railroad, from Providence, R. I., to Danielsonville, Conn.

The officers of the Texas Western Narrow Gauge Railroad Company are: President, J. T. Brady; directors, T. W. Hoise, J. M. Mitchell, W. Brady, L. Shearn, Dr. Roberts and T. Scanlan. Col. J. M. Mitchell is General Manager and Chief Engineer and has his office in Houston, Texas. He was formerly Chief Engineer of the Wyandotte, Kansas City & Northwestern Railway.

TRAFFIC AND EARNINGS.

The earnings of the Burlington, Cedar Rapids & Minnesota Railway for the third week in September were \$28,181, or \$66 per mile.

The earnings of the St. Paul & Sioux City Road for August were: 1874, \$72,936; 1873, \$67,481; increase, \$5,455, or 8½ per cent. For the eight months ending with August 31 the earnings were: 1874, \$517,466; 1873, \$463,086; increase, \$54,380, or 11½ per cent.

The shipments of peaches passing through Wilmington, Del., from the beginning of the season up to September 24 were 1,265 car-loads, or 732,500 baskets. The season is now closed, and this may be taken as the total of the year's business, which is very much smaller than last year's.

The earnings of the Philadelphia & Erie for August were:

	1874.	1873.	Increase.	Decrease.	P. c.
Earnings.....	\$349,518	\$334,586	\$14,932		4½
Expenses.....	230,135	316,453		\$86,318	27½
Net earnings.....	\$119,383	\$118,133	\$103,250		640

The expenses were 65.84 per cent. of earnings in 1872 and 95.18 per cent. in 1873. The net earnings for the eight months ending August 31, 1874, were \$548,040.

The Utah Central Railroad during August carried 10,718 tons of freight, of which 3,607 tons was coal and coke.

The Utah Southern Railroad carried during August 8,596 tons of freight, the principal items being: ore and bullion, 3,105 tons; coal and coke, 1,674 tons; charcoal, 908 tons.

The earnings of the Denver & Rio Grande Railway (main line) for the second week in September were: 1874, \$9,138; 1873, \$6,756; increase, 2,382, or 35½ per cent.

Of the eastward shipments of flour and grain from the western lake ports for the week ending Sept. 19, 58 per cent. of the flour, ¼ of 1 per cent. of the wheat, 2½ per cent. of the corn and 38 per cent. of the oats were by rail.

The receipts of flour and grain at the Atlantic seaports for the week ending Sept. 19 were:

	Flour, bbls.	Wheat, bush.	Corn, bush.	Oats, bush.
1873.....	269,875	2,483,794	1,049,140	392,487
1874.....	189,018	1,683,890	648,610	431,418
Decrease.....	80,857	799,894	405,530	
Increase.....				38,931
Per cent.....	-30	-32½	-38½	+10

Of the grain shipments from Buffalo during the week ended Sept. 19, 38½ per cent. was by rail.

The earnings of the Indianapolis, Cincinnati & Lafayette Railroad for the year ending June 30, 1874, were:

Earnings (\$10.288 per mile).....	\$1,859,474 87
Expenses (66.66 per cent.).....	1,228,353 39
Net earnings (\$3.526 per mile).....	\$631,121 48

The earnings of the Great Western Railway of Canada for the week ending September 11 were: 1874, \$20,240; 1873, \$28,553; decrease, \$8,304, or 29 per cent.

The earnings of the Grand Trunk Railway for the week ending September 12 were: 1874, \$45,700; 1873, \$43,600; increase, \$2,100, or 4½ per cent.

The earnings of the Atlantic & Pacific Railroad and leased lines for the third week in September were: 1874, \$110,430; 1873, \$127,066; decrease, \$16,636, or 13½ per cent.

The earnings of the New York, Providence & Boston Railroad for the year ending August 31 were:

Earnings (\$13.932 per mile).....	\$933,631 30
Expenses (68.54 per cent.).....	640,311 35
Net earnings (\$6.079 per mile).....	\$293,319 95

PERSONAL.

Mr. C. H. Hudson, formerly Superintendent of the Chicago Division of the Chicago, Burlington & Quincy and for about two years past General Superintendent of the Chicago, Clinton & Dubuque and Chicago, Dubuque & Minnesota roads, has resigned his position. It is reported that he is to succeed Mr. W. B. Strong as Assistant General Superintendent of the Chicago, Burlington & Quincy.

Mr. A. H. Morrison, who recently retired from the position of General Manager of the Chicago & Michigan Lake Shore road, was presented with a watch and chain valued at \$650 by the employees of the road. The presentation took place at Mr. Morrison's residence in St. Joseph, Mich., September 22.

Mr. Edward H. Rich having resigned his position as Superintendent of Telegraph and Train Dispatcher on the Southern Central Railroad, his friends on the road presented him with a valuable clock and a handsome silver water pitcher and goblets. The board of directors also passed resolutions very complimentary to Mr. Rich's ability and faithful performance of duty.

Col. E. Pratt Buell, late of the Mississippi Valley & Western road, is working up a project for a road from Quincy, Ill., to connect with the Central of Iowa at Albion.

Mr. Isaac Craig Buckhout, for many years Chief Engineer of the New York & Harlem Railroad, until within a year and a half Superintendent also, and one of the board of engineers having in charge the "Fourth Avenue Improvement" by which this railroad enters New York, died at his home in White Plains, N. Y., September 27, at the age of 44 years.

Mr. Chester W. Chapin, President of the Boston & Albany Railroad Company, arrived in New York September 27 from Europe, where he has been spending some months in a pleasure trip.

Mr. A. L. Holley, of New York, the well known inventor of improved Bessemer steel apparatus, read two papers at the

late session of the Iron and Steel Institute at Barrow, England. The *Moniteur des Interets Materiels* say that the most important discussion of the meeting beyond question was occasioned by these papers.

Mr. S. C. Baldwin has resigned his position as Superintendent of the Peninsula Division of the Chicago & Northwestern to take the management of the Cleveland Iron Works.

Col. W. C. Van Horne, late General Superintendent of the St. Louis, Kansas City & Northern road and before that Assistant Superintendent of the Chicago & Alton, has been offered the position of Manager of the Joliet Iron & Steel Works under the new President.

Mr. John J. McNamee has resigned his position as Secretary of the American Fork Railroad Company.

OLD AND NEW ROADS.

The Forty-first Parallel Railroad.

Articles of incorporation have been filed with the Secretary of Indiana by the Forty-first Parallel Railroad Company, Indiana Division. The line of the road is to be across the State from the Ohio line in Allen County to the Illinois line in Newton County, where it will connect with the Keithsburg & Eastern.

Gilman, Clinton & Springfield.

In the long-pending suit against this company the cross-bill filed by Morton, Bliss & Co. and others has been stricken from the files, and leave granted to file the same as a separate suit.

Indianapolis & Springfield.

The surveys for this road have been commenced, the engineers starting from Montezuma, Ind., and working eastward.

Detroit & Milwaukee.

In the foreclosure suit an answer to the petition for a stay of proceedings has been filed. It denies all charges of collusion, insists that the mortgage of April 24, 1855, includes all property subsequently acquired, and also declares that the Great Western Railway Company had sufficient notice of the suit.

The case has been continued by mutual consent for 30 days. If the Great Western Company takes action in the interval to relieve the Detroit & Milwaukee from its troubles, the suit will probably be withdrawn.

A Correction in the Train Accident List.

Mr. J. F. Lincoln, Superintendent of the St. Paul & Sioux City road, informs us that the report of a collision between a transfer engine of that road and a West Wisconsin train in St. Paul, August 29, which was published among the train accidents for August, is incorrect, no such accident having happened. The report in question was taken from a local paper, as indeed very many of our accounts of accidents are, and as it is impossible in all cases to verify their correctness, mistakes are occasionally made. In this case the error was probably in the name of the company to which the transfer engine belonged.

The Wisconsin Railroad Law.

The motion to include the Prairie du Chien Division of the Milwaukee & St. Paul, heretofore exempted, in the injunction to compel obedience to the railroad law, was argued before the Wisconsin Supreme Court, September 22. The decision was announced September 29, and was against the company, the Court granting the motion. The Prairie du Chien line must therefore be operated in accordance with the provisions of the Potter law.

Spartanburg & Asheville.

The contract for the South Carolina Division having been let, a call has been made for the second installment of \$5 per share on all subscriptions to the stock.

Chesapeake & Ohio.

Messrs. Fisk & Hatch, the company's agents, report that the funding of the coupons is proceeding rapidly, a very large part of the bondholders and creditors having accepted the company's proposition.

A meeting of Baltimore holders of the 7 per cent. second-mortgage bonds was held in Baltimore, Sept. 28. No definite action was taken, but the general feeling is said to have been in favor of accepting the company's proposition, as the best that can be done under the circumstances.

A circular has been issued, signed by A. F. Richards, M. Lewenthal and E. L. Andrews, urging first-mortgage bondholders to refuse to fund their coupons and to demand of the company a representation in the board; a thorough investigation of the company's affairs; the appropriation of all net earnings to payment of interest on the first-mortgage bonds. Lastly, if these demands are not conceded, a foreclosure of the mortgage is recommended.

Railway Equipment Trust of Pennsylvania.

A company by this name has been organized in Philadelphia with a capital of \$3,000,000, which proposes building cars and leasing them, on such contracts that all surplus of rental after paying 8 per cent. on the cost of the car shall be used to pay such cost, so that the cars will finally become the property of the lessees. Contracts have already been closed for the construction of 1,000 cars.

The Philadelphia Ledger says:

"The Pennsylvania Railroad Company, with the view of meeting the demands made upon it by the managers of the various coal properties seeking outlets over its lines, as well as the requirements of the properties owned by it, propose to lease these cars from the association. The ordinary car service allowed to connecting lines will be appropriated to pay the interest or rental of 8 per cent., and the balance of that fund will be applied, from time to time, to extinguish the principal, so that within the period of a few years the Pennsylvania Railroad Company, out of the savings thus made, expects to own the whole of the cars it takes in this form. One good effect of this car association will be to enable the Pennsylvania Railroad Company to supply coal cars to operators on the lines of its several roads, and make productive properties that are now producing little, if anything, and it will enable the company to do this without increasing its floating debt; indeed, it will relieve the existing pressure in that regard to the extent of the loan used."

Jersey City & Albany.

Track laying has been begun on the extension from Tappan, N. Y., northward to Haverstraw. The \$85,000 in bonds voted by the latter town have been issued and paid over to the company.

George W. Weiant, attorney for certain taxpayers of the town of Haverstraw, N. Y., cautions all persons against receiving the bonds of the town issued to this company. He alleges that there are fatal errors in the proceedings for bonding the town, and says that a certiorari will be applied for to reverse those proceedings.

Boston & Lowell.

This company has contracted for the equipment of ten miles of its road, from Boston to Stoneham Branch Junction, with Hull's electric signals.

Roanoke Valley.

At a meeting held in Buffalo Springs, Va., between conference committees from Mecklenburg county and Richmond,

it was resolved to take the grading as far as completed and to build a narrow gauge line from the Richmond & Danville road to Clarksville by way of Chase City, with a branch to Boydton. Mecklenburg is to furnish \$105,000, Richmond and the Richmond & Danville Company the rest of the money needed.

A Railroad Accountants' Association.

Mr. Geo. D. Sparks, Auditor of the Louisville, Cincinnati & Lexington Railroad, has issued the following circular addressed to the auditors and chief accounting officers of the railroad and steamboat lines of the United States and Canada:

LOUISVILLE, Ky., Sept. 15, 1874.

SIR:—Taking into consideration the advantages that might be gained by organizing an association composed of the above mentioned officers, I make this effort to ascertain the general feeling in regard to such a move.

I am of the opinion that many advantages might be gained in the way of classifying and keeping railroad accounts, which would benefit all interested. Our Superintendents, General Ticket Agents, General Freight Agents and Master Mechanics' Conventions have all proven successes, and many items of importance have been gained by their members.

I send enclosed blank to be filled out, and if a sufficient number are returned to guarantee success, a meeting will be called at such a time and place as a majority of those returning them may designate.

Very respectfully,
Geo. D. Sparks.

(Copy of Blank.)

Comptrollers, Auditors, and General Accountants of Railway and Steam Navigation Lines in the United States and Canada.

City of..... State of..... 1874.

Name of Road.....

Length of Road.....

Are you in favor of an association composed of the above-mentioned officers?

Are you willing to become an active member?

What city would you prefer for the first meeting?

What month, December, 1874, or January, 1875?

Sign.....

Title.....

The Brotherhood of Locomotive Engineers.

A meeting was held in Fort Jervis, N. Y., September 25, of representatives from the engineers of all the trunk lines centering in New York. Grand Chief Engineer Arthur, of Cleveland, presided. It is stated that strong resolutions were passed proposing to be united in resisting any effort to reduce pay. A resolution was passed looking to the restoration of the 10 per cent. reduction made on the pay of engineers of the Pennsylvania road last winter.

Flint & Pere Marquette.

Between August 1 and September 15, this company cancelled from the receipts of its land office \$6,000 7 per cent. bonds of 1860, \$27,000 7s of 1860, and \$11,000 8s of 1860. Of the first series issued there yet remains to be cancelled only \$1,000, and of the second series \$58,000.

Buffalo, New York & Philadelphia.

The Mayor of Buffalo has vetoed a resolution of the City Council ordering a sale of the city's interest in this road. The Council subsequently refused to override the veto.

North Pacific Coast.

Arrangements are being made for the transfer to this company of the San Rafael & San Quentin Railroad and the ferry from San Quentin to San Francisco. If the sale is made, the four miles of the railroad will be changed to narrow gauge, and the passenger business will go by way of San Quentin, while the freight will be sent by way of Sausalito, the line from San Rafael to Sausalito being retained for that purpose.

Boston, Barre & Gardner.

The stockholders met in Worcester, Mass., September 26, and after some discussion voted to ratify the lease of the Monadnock Railroad. The lease, which has already been ratified by the Monadnock Company, provides for a rental of \$12,000 per year for two years, \$15,000 for three years and \$18,000 thereafter. The road being 16 miles long, the rental will vary from \$750 to \$1,125 per mile.

Paris & Decatur.

The preliminaries have all been settled and the agreement of consolidation between this company and the Peoria, Atlanta & Decatur is all completed. It only remains to have the question voted on by the stockholders of the two companies.

Toronto & Nipissing.

At the recent annual meeting the Chief Engineer reported that a part of the line needed renewing and, as a commencement of this work, 100 tons of 56-pound iron and 200 tons of 56-pound steel rails had been purchased. The road is of 3 ft. 6 in. gauge, but appears to require as heavy iron as most standard-gauge lines.

James River.

The convention to advocate the building of this road met in Buchanan, Va., Sept. 17, a large number of delegates being present. Resolutions were passed favoring the immediate construction of the road from the Chesapeake & Ohio at Clifton Forge southeast to the terminus of the James River Canal at Buchanan. It was also resolved that the road should be operated by or in connection with the Chesapeake & Ohio, and should hereafter be extended to Lynchburg and Richmond.

Two lines have been surveyed from Clifton Forge to Buchanan, one 26½ and the other 30 miles long, the estimated cost of the former being about \$44,000, and of the latter \$49,000 per mile.

McKean & Buffalo.

A company by this name has been organized to build a railroad from the Buffalo, New York & Philadelphia at Larabee southwest about 25 miles to Bishop's Summit in McKean County, Pa. The company is substantially the same as the Buffalo Coal Company, which has purchased a large tract of coal land about Bishop's Summit, and whose mines will be served by the new road.

Lowell & Andover.

Track has been laid on this road from the junction with the Boston & Maine at Ballardvale, Mass., westward six miles. A construction train is at work on the line.

Lake Ontario Shore.

This road was sold at auction at Oswego, N. Y., September 22, under foreclosure of the first mortgage. The terms of the sale were 25 per cent. down and the balance in 30 days payment to be made either in money or in bonds and overdue coupons. The amount of the bonds and overdue interest was stated to be \$2,340,161 35 gold, and there was a further indebtedness of \$1,360 76, currency. The bonds were to be received *pro rata*, each bond for such fraction of the purchase money as it is of the whole issue of bonds. There was but one bid

and the road was sold to Moses Taylor, of New York, as attorney for himself, Samuel Sloan, Edwin F. Hatfield, Jr., John T. Denny, Marcellus Massey, John S. Barnes, Theodore Irwin, Charles Rhodes, George B. Sloan, Talcott B. Camp, John Brisbin, James C. Ford and Christian Zabrickie. All the purchasers are large owners of stock in the Rome, Watertown & Ogdensburg and Delaware, Lackawanna & Western companies, and the purchase is understood to have been in the interest of the former. The amount paid is \$1,950,000, gold, and \$1,360 76, currency, the sale thus realizing about 83½ per cent. of the bonded debt.

Smyrna & Delaware Bay.

This road was sold at sheriff's sale in Smyrna, Del., September 17, and was purchased for \$54,300 by the American Dredging Company of Philadelphia, which, we believe, is one of the creditors. It is stated that the new owner will put the line in order and operate it. It is 16 miles long, from Bombay Hook, Del., west to Massey's, and rails were laid on it last fall, but it has never been finished or worked.

Nashua & Rochester.

The track is laid to a point about five miles from the bridge over the Merrimack at Nashua, N. H., and 43 miles southwest from Rochester, the northern terminus. The eastern pier of the Nashua bridge is completed, and work on the rest is being pushed forward. A new union depot is to be built in Nashua for this road, the Nashua & Lowell and the Worcester & Nashua.

Pueblo & Salt Lake.

The contractors on the section of this road from Pueblo, Col., to West Las Animas are Moore, Carille & Orman for the grading and C. C. Welch, Golden, Col., for the bridges and ties. The grading is to be done by March 1, 1875, and the bridge work and ties by July 1, 1875.

Pennsylvania.

The Empire Individual line over the Pennsylvania, Cumberland Valley, Northern Central and Philadelphia & Erie roads was withdrawn October 1. Freights heretofore taken by this line will be carried by the Pennsylvania Fast Local Freight line.

Maryland & Pennsylvania.

All the property of this company in Maryland was to be sold at Towson, Md., September 30, under a decree of the Hartford County Circuit Court, by H. Stump, Jr., Trustee. This is the Maryland end of the proposed new line from Philadelphia to Baltimore, the Pennsylvania end being known as the Juniata & State Line road. The Trustee's advertisement says that much work has been done and about \$100,000 spent on the 10 miles from the Relay House through Towson to Cromwell's Bridge, and thence to Bellair the line is located.

Marshall & Coldwater.

The name of this projected railroad has been changed to Coldwater, Marshall & Mackinac. The tracklaying from Murphysboro, Ill., southward has been commenced, but was delayed a few days until the iron bridge over the Big Muddy River could be put up. The work will be pushed forward.

Valley, of Ohio.

A special meeting of the stockholders was held in Cleveland, O., September 23. It was resolved by a nearly unanimous vote to authorize the extension of the road from Bowerstown, O., the terminus of the present survey, southeast to Martinsville on the Ohio River, a distance of 35 miles. It was also resolved to authorize the issue of mortgage bonds to the amount of \$25,000 per mile, these bonds to be sold from time to time as money is needed for the purchase of iron and equipment.

The officers of the company report that the grading, bridging and masonry from Cleveland to Canton are nearly completed and the ties bought. The line is located and the right of way secured from Canton to the crossing of the projected Wheeling & Lake Erie road in the Conotton Valley. The differences between the contractors have been settled.

United States Contracts.

Lieut. Col. John Newton, Corps of Engineers, Brevet Major General U. S. A., will receive proposals until noon of October 14 at his office, Army Building, Houston and Greene streets, New York, for raising the level of the top of the pile dyke in the Hudson River near Albany.

The same officer will receive proposals until October 10 for building a pile dyke at Elizabethport, N. J.

Texas & Western.

An officer of this company writes to us: "This line is proposed to run to New Braunfels and San Antonio, with branches to Indianola and Corpus Christi on the Gulf coast. The charter for this road has been obtained, and is very liberally subsidized in land grants by the State, besides having appropriations from various counties on the line. The city of Houston has voted \$100,000 gold. It is also proposed to build east and northward, charters for which have been obtained. Colonel J. M. Mitchell, the General Manager and Chief Engineer, has just completed his surveys, and the first 60 miles, for which the iron is ready for shipment, is about to be let to contractors eminent in their specialties, viz., 3-foot roads; as the general features of the first 50 miles is prairie, it is thought the line to the Brazos River will be ready for the rolling stock by Christmas."

Ponagansett.

Arrangements have been made to begin at once the survey of this line from Providence, R. I., westward to Danielsonville, Conn., a distance of about 30 miles. A branch from Scituate to Hope Village will also be surveyed.

Stockton & Ione.

A contract has been made for the rails for 18 miles of this road, and they are to be delivered within 60 days.

The Hoosac Tunnel Line.

The bids for the reconstruction of the Troy & Greenfield road from Charlemont to Bardwell's Ferry were opened last week. The contract for eight miles, from Charlemont to Shelburne Falls, was let to N. C. Munson & Co., of Boston, and that for the five miles from Shelburne Falls to Bardwell's to B. N. Farren. Both contracts are to be completed by June 1, 1875, and the eight miles already let, from Charlemont to the tunnel, by December 1, 1874. The work is let at a fixed price per yard for earth cutting, rock cutting, filling and masonry.

Rochester, Nunda & Pennsylvania.

The track has been laid to a connection with the Dansville & Mount Morris Branch of the Erie, near Mount Morris, N. Y., three miles north of the late terminus at Tuscarora, and twenty miles from the southern end of the track in Nunda. Work has been begun on the southern end of the line.

Syracuse Northern.

Some time since the second and third-mortgage bonds, amounting to \$600,000, were sold to parties in the interest of the Rome, Watertown & Ogdensburg and Delaware, Lackawanna & Western companies, and these parties instructed the trustee to foreclose at once. The bonds had been mainly owned by the directors individually, and one of the conditions of sale was that one quarter of the price should be kept back until the mortgages should be foreclosed, and a title to the railroad perfected under such foreclosure, so as to be free from

all claims and rights of stockholders. The foreclosure suit was brought without opposition from the company, but the City of Syracuse and several other towns owning stock in the road applied to be allowed to come in as defendants and contest the suit. The Court has decided under the circumstances of the case, to grant the application, and the suit will be contested accordingly.

Minnesota & Northwestern.

Track has been laid from Mankato, Minn., south by east to Good Thunder's Ford, a distance of 20 miles. An excursion train was to run over this section September 29. About 10 miles more will complete the road to Wells.

Montpelier & Wells River.

This company is in somewhat embarrassed circumstances, as the bondholders are pressing for interest due them and the equipment has been attached for a debt due the builders. A meeting was to be held in Montpelier, Vt., September 29, to consider the following questions:

First, Whether the stockholders will vote to place the possession of the railroad of said company into the hands of any other party upon any terms, and if so, upon what terms.

Second, What course the stockholders will take to raise money for the present and future uses of the company.

Third, Whether the stockholders will convert or change the stock now owned by them into preferred stock, and if so, upon what terms.

The road, which was opened last Winter, is 98 miles long, from Montpelier, Vt., eastward to Wells River.

International.

The coupons due October 1 on the first mortgage bonds were paid in New York on that day.

Detroit, Lansing & Lake Michigan.

The October coupons on \$3,219,000 8 per cent. bonds were paid, as in April last, one-half in cash and one-half in preferred stock.

Atchison Bridge.

The caisson for the pivot pier of the bridge over the Missouri River at Atchison, Kan., was launched Sept. 24. The caisson is 46 feet square by 15 feet high and weighs 350 tons. A large force of men and seven boats are now employed in the work by the contractor, the American Bridge Company of Chicago.

New York & Oswego Midland.

The Delaware (N. Y.) Gazette says: "The town of Hancock in this county has already commenced several suits against the holders of the bonds to cancel the town bonds issued in aid of the New York & Oswego Midland Railroad. Several are pending in the State Courts, and also in the United States Circuit Court. The counsel employed, ex-Judge E. More, of New York City, and ex-Judge C. Nelson, of Hamilton, we understand, give it as their opinion, after careful examination, that the bonds are void and cannot be collected."

Dividends.

Dividends have been declared by the following companies: Chicago, Rock Island & Pacific, 4 per cent., semi-annual, payable October 27.

Delaware, Lackawanna & Western, 2½ per cent., quarterly, payable October 20.

New York, Providence & Boston, 2½ per cent., quarterly, payable October 10.

Nashville, Chattanooga & St. Louis, 1½ per cent., out of the earnings of the past six months, payable October 1.

Central of New Jersey, 2½ per cent., quarterly, payable October 20.

Pacific of Missouri, 1½ per cent., quarterly, payable October 26 by Atlantic & Pacific Railroad Company, lessee.

Lowell & Lawrence, 3 per cent., semi-annual, payable October 5.

Ogdensburg & Lake Champlain (leased by Central Vermont), 4 per cent., semi-annual, on the preferred stock, payable October 1.

Sionx City & Pacific, 3½ per cent., semi-annual, on the preferred stock, payable October 1.

Vermont & Massachusetts (leased by Fitchburg Company), 2 per cent., semi-annual, payable October 5.

Meetings.

The first-mortgage bondholders of the Montclair Railroad will meet at No. 111 Liberty street, New York, October 6, to receive the report of the committee.

The stockholders of the Columbus, Chicago & Indiana Central Railroad Company will meet in Columbus, O., October 28, to transact such business as may be brought before them. Transfer books will be closed from October 17 to October 29.

The annual meeting of the Vermont & Canada Railroad Company will be held in Bellows Falls, Vt., October 15.

New Mail Routes.

Mail service has been ordered over the Berks County Railroad, from Reading, Pa., to Slatington, 44 miles.

Connecticut Central.

The towns of Glastonbury and Portland having taken no action as to subscribing to the stock of this company, the present intention is to build only to the crossing of the Hartford, Providence & Fishkill road in East Hartford, and then use the track of that road to a connection with the Connecticut Valley in Hartford.

Connecticut Valley.

The Philadelphia & Reading Coal & Iron Company has leased an extensive water front at Baybrook, Conn., from this company, and intends to put up coal wharves there, and to make an extensive coal depot, which will bring a considerable addition of traffic to the road.

Baltimore, Pittsburgh & Ohio.

The Michigan Central Company has made application for an injunction to restrain this company from crossing its tracks at grade at Lake Station, 35 miles from Chicago, where the two roads intersect. This trouble may possibly delay the completion and opening of the road.

Tracklaying is progressing steadily on all the sections, and it is expected that the rails will all be down by November 1.

Chicago, Saginaw & Canada.

The projectors of this road have resolved to make the eastern terminus at East Saginaw, Mich., instead of Bay City. The former city offers to build the bridge over the Saginaw River and to give the right of way through the city.

Southern, of Long Island.

The purchasers of the South Side Railroad at the recent foreclosure sale have organized a new company under this name, by the election of a board of directors and the necessary officers.

Texas & Pacific.

The contractors had made arrangements to put a force on at once to complete the grading from Dallas to Fort Worth, expecting the company to furnish the iron as soon as it was needed. It now appears, however, that General Dodge says it is impossible to furnish the iron, so that it is still uncertain when the road will reach Fort Worth.

Peoria & Rock Island.

A meeting of the first-mortgage bondholders was held in New York, September 24. It was resolved to appoint a com-

mittee to proceed to Illinois to examine into the condition of the road and the company and other matters of interest to the bondholders and to report to an adjourned meeting to be held on their return. Bondholders are requested to contribute \$5 per bond for the necessary expenses. The committee appointed consists of Remington Verdam, Wm. O. McDowell, New York; G. S. Adams, Green Point, L. I.; H. W. Howard, Batavia, N. Y.; C. C. Hussey, Pittsburgh, Pa.

The reasons given by the Trustees for recommending the bondholders not to accept any funding proposition are that the road has never earned enough to pay interest on the bonds, because it has been operated in the interest of a connecting line and its local traffic neglected; that it never can earn the interest until it is worked independently of all outside interests; and that bondholders are asked to permit the earnings to be used for payment of the floating debt, instead of the purchase of new equipment and improvement of the capacity of the road. He recommends that the bondholders demand a controlling voice in the management of the road, failing to obtain which, they should take possession of the road under the trust deed.

Chicago & Illinois River.

Track laying has been commenced and is progressing steadily.

Canada Southern.

Two fast trains with sleeping coaches are to be put on to leave Buffalo daily.

It is said that 700 new box cars have been ordered from a Toronto firm and that 100 new stock cars have been ordered.

Fond du Lac, Amboy & Peoria.

Surveys have been commenced for the section of this line from Amboy, Ill., the crossing of the Illinois Central and Chicago & Rock River roads, southward to Peoria.

Wabash & Erie Canal.

A suit has been begun in the Marion County (Ind.) Superior Court by J. K. Gapon, who claims to hold \$575,000 of the stock of the company, to compel the trustees of the Wabash & Erie Canal to sell all the property and apply the proceeds to the benefit of the stockholders.

Montclair.

Messrs. Pratt and Spaulding having applied to the Chancellor of New Jersey to enforce against the trustee under the second mortgage, who is now operating the road, the injunction heretofore issued to prohibit the company from running trains until their right of way claim is paid, the Chancellor declines to make the order asked for. He holds that no benefit will result to the claimants by the stoppage of travel, as the company is hopelessly insolvent and cannot be made to pay, and the bondholders now in possession are not liable. Moreover there is a sufficient security for the claim, as in the suit for foreclosure of the first mortgage, now pending, it was been decided that the right of way claims are a lien prior to any mortgage, and in the final decree of foreclosure provision may be made for their payment by the sale of the land, or on application of the claimants their rights may be enforced by a special decree and sale. Meantime the Court is not justified in equity in stopping the running of trains to the inconvenience of the public.

The claimants in this case were not the owners of the land, but having become sureties for the company were subsequently obliged to pay the original owner his claim, and thus became possessed of his rights. The case makes a precedent of some importance in such cases.

The report of the committee appointed by the first-mortgage bondholders is to be presented at a meeting to be held in New York, Oct. 6.

Michigan & Ohio.

The contract for the entire line from Grand Haven, Mich., to Portsmouth, O., 400 miles, has been let to C. Howland White & Co., of Defiance, O., who are now letting sub-contracts. Mr. A. O. Loomis has immediate charge of construction work.

Detroit & Milwaukee.

The hearing on the motion to appoint a receiver in the foreclosure suit has been adjourned for 30 days.

Maine Central.

This company gives notice that the Bangor city bonds issued in aid of the Penobscot & Kennebec road, which fall due October 2, will be paid at the National Bank of Commerce in Boston, or they can be exchanged for Maine Central consolidated 7 per cent. bonds at the office of the Treasurer, J. S. Cushing, in Augusta, Me.

Southern Minnesota.

There is a report that this road will shortly pass under the control of the Milwaukee & St. Paul Company. This report, however, has been contradicted, apparently by authority. The foreclosure sale, which was to have taken place September 24, has been postponed to October 24.

Chicago, Milwaukee & St. Paul.

In the suit brought by bondholders of the old St. Paul & Milwaukee road, the United States Circuit Court in New York has made an order for the company to appear and show cause why an injunction should not be granted to prevent the issue of bonds under the new \$35,000,000 consolidated mortgage.

Central Branch, Union Pacific.

In the suit of Treadwell against Pomeroy and others to compel the defendants to account for the profits of the contract for building the road, the New York Supreme Court has refused to order the appointment of a receiver.

Atchison, Topeka & Santa Fe.

The Land Department recently made a sale of a tract of 150,000 acres to a colony of Mennonites from Russia, 1,900 of whom were already in Kansas. The tract lies in Marion, Harvey, McPherson and Reno counties, Kansas, in the Arkansas Valley.

Camden, Gloucester & Mt. Ephraim.

Three lines have been surveyed for the extension from Gloucester, N. J., to Mt. Ephraim, and the final location was to be made this week. Work will be begun as soon as this is done.

Manhattan & Northwestern.

Track-laying has been commenced on this road, the first spike having been driven at Manhattan, Kan., Sept. 22, with some ceremony.

Chicago & Northwestern.

A passenger train of this road ran across the Missouri Bridge into Omaha for the first time September 23. As soon as the necessary accommodations are ready, all trains will cross, not only of the Northwestern, but of the other roads which now run to Council Bluffs.

Des Moines & Minnesota.

Surveys are being made for a branch about ten miles long from Polk City, Ia., 12 miles north of Des Moines, northwest to Swede Point.

Chicago & Alton.

Some years ago the city of Bloomington, Ill., brought suit to compel this company to build a bridge across its track to accommodate travel on Front street, one of the regularly adopt-

ed streets of the city. The city won the suit both in the Circuit and Supreme Courts of Illinois. An appeal is, however, to be taken to the United States Supreme Court, and the necessary papers are being prepared. The case is of interest to all Illinois towns through which railroads pass.

Chicago, Burlington & Quincy.

It is stated that the contract has been let for the new bridge which this company is going to build across the Mississippi at Clinton, Ia. The company has offered to make a wagon road over the bridge, provided Clinton will guarantee 10 per cent. on the extra cost and will keep the wagon way in repair.

New Haven, Middletown & Willimantic.

In a suit brought to compel the town of Chatham, Conn., to give its guarantee to certain bonds of this company, the Connecticut Supreme Court, while refusing the relief asked for in the case on certain technical points, has decided that the selectmen are bound to carry out the vote of the town and to guarantee the bonds. Process is to be commenced at once to compel the town to enure the whole amount (\$40,000) of bonds voted.

Boston & Providence.

It is stated that this company has reduced its freight charges from 25 to 35 per cent.

Illinois Central.

The suit brought this company in the Alexander County Circuit Court came up September 22 and was continued on affidavit. The suit is for violation of the railroad law.

New York Central & Hudson River.

The work on the new third and fourth tracks is being pushed forward, and the present intention is to have them completed from Albany to Rochester by November 1. Tracklaying is going on at several points and the ballast trains follow up the tracklayers as closely as possible. The new line around Syracuse, which is about four miles long, is very nearly ready for use. A second track is being laid on the line from Rochester to Suspension Bridge, and this, with the double track on the Buffalo Division, will constitute the four tracks for the section of the line west of Rochester.

There is some talk of abandoning the Athens Branch and laying four tracks on the Hudson River Division from Albany to Coxsack and establishing freight docks there.

Grand Trunk.

The work of changing the gauge of the lines east of Montreal from 5 ft. 6 in. to 4 ft. 8 1/2 in. commenced September 25. Standard-gauge trains ran from Montreal to Portland September 28, the change having been completed on all the lines except the Riviere du Loup Division, which was not open until September 29. The lines changed were the main line from Quebec to Montreal, 297 miles; Quebec Branch, 96 miles; Riviere du Loup Division, 136 miles, and the Three Rivers Branch, 35 miles—in all 564 miles of road. The change of the whole line to standard gauge is now complete.

The company advertises for sale a number of locomotives of 5 ft. 6 in. gauge. These locomotives are ready for immediate use on the road, or at a moderate cost can be made available as stationary engines. The boilers will be sold separately from the engines, if desired. Application is to be made to Joseph Hickson, Treasurer, Montreal, Canada.

Missisquoi & Black River Valley.

Work on this road was commenced at Valcourt, P. Q., September 16. The line is to run from the Passumpsic road at Newport, Vt., northward to the junction of the main line and Quebec Branch of the Grand Trunk at Richmond, P. Q.

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Lake Shore & Tuscarawas Valley.

This company owns a road 101 miles long, from Black River, O., on Lake Erie, south by east to Uhrichsville on the Pittsburgh, Cincinnati & St. Louis. Eight miles of this, from Black River to Elyria, were built by a distinct company, which was afterwards consolidated with this.

The property is represented as follows:

Stock and subscriptions (\$20,039 per mile).....	\$2,423,957 50
First mortgage bonds.....	2,000 00 00
Second.....	696,000 00
Elyria & Black River bonds.....	180,000 00
Total funded debt (\$28,475 per mile).....	\$2,876,000 00

Total (\$48,514 per mile)..... \$4,899,957 50

At the date of the report the floating debt amounted to \$267,891.32, and there was \$25,305 interest on bonds due and unpaid.

The earnings for the year ending May 31, 1874, were:

Passengers.....	\$ 71,775 98
Freight.....	249,159 72
Other sources.....	8,611 66

Total earnings (\$3,263 per mile)..... \$329,547 36

Operating expenses (60.02 per cent.)..... 198,126 03

Net earnings (\$1.304 per mile)..... \$131,421 33

No comparison can be made with the previous year, when the road was under construction with only a portion open for travel. The net earnings amounted to 4.57 per cent. on the funded debt.

The work of the year was as follows:

Passengers carried.....	144,770
Passenger mileage.....	2,131,660
Tons of freight moved.....	280,617
Tonnage mileage.....	11,091,382

The average receipts per passenger per mile were 3.37 cents, and per ton per mile 2.08 cents. The coal tonnage was 75.64 per cent. of the whole. The very great falling off during the year of the coal and iron business, to carry which the road was mainly built, has been the cause of serious embarrassment to the company.

During the year \$467,682.27 was received from the sale of second-mortgage bonds, and \$42,042.50 from capital account. Expenditures for interest were \$190,516.06, and for construction and equipment \$487,329.12.

The equipment consists of 15 engines, 4 passenger, 2 passenger and baggage, and 2 baggage, mail and express cars; 20 box and 402 coal cars.

Efforts were made during the year to secure means to pay off the floating debt and meet other engagements by selling second-mortgage bonds to the stockholders, but without success, and at the close of the year the company was unable to meet its most pressing debts.

Since that time it has gone into the hands of a receiver, on application of the bondholders.

Marietta & Cincinnati.

This company owns and operates the following lines:

Main line, Cincinnati, O., to Belpre.....	Miles. 203
Hillsboro Branch, Blanchester to Hillsboro.....	21
Marietta Branch, Scott's Landing to Marietta.....	4
Scioto & Hocking Valley, Hamden to Portsmouth.....	56
Total mileage.....	284

The property is represented by the following securities:

First preference stock.....	\$8,103,650 00
Second preference stock.....	4,438,000 00
Common stock.....	1,386,000 00
Stock scrip.....	72,850 00

Total stock (\$49,296 per mile).....	\$14,000,000 00
First-mortgage bonds and scrip.....	3,508,902 98
Second-mortgage bonds.....	2,500,000 00
Third-mortgage bonds.....	3,000,000 00
Fourth-mortgage bonds.....	2,004,000 00
Scioto & Hocking Valley bonds.....	300,000 00

Total funded debt (\$30,817 per mile)..... \$11,307,902 98

Total stock and bonds (\$60,113 per mile)..... \$25,307,902 98

The fourth-mortgage bonds were added to the capital account during the year, and \$1,996,000 remained unsold at its close, the whole issue authorized being \$4,000,000. Advances to the Cincinnati & Baltimore Company amounted to \$306,005.45, in addition to the original subscription of \$353,650. Advances to the Baltimore Short Line were \$204,360.53, in addition to a subscription of \$250,000.

The earnings for the year ending December 31 were:

Passengers.....	1873. 1874.
Freight.....	\$503,816 91 \$484,132 73
Other sources.....	1,507,617 35 1,400,567 21
	115,440 47 185,464 72

Total earnings..... \$2,126,874 73 \$2,029,164 65

Operating expenses..... 1,694,335 71 1,618,713 06

Net earnings..... \$432,539 02 \$410,451 59

Gross earnings per mile..... \$7,469 00 \$7,144 88

Net..... 1,523 2 1,445 25

Per cent. of expenses..... 79.06 79.75

The decrease in gross earnings was \$97,710.04, or 4.82 per cent.; in expenses, \$75,622.65, or 4.67 per cent.; and in net earnings, \$22,087.43, or 5.38 per cent. The first nine months of the year showed a heavy increase, the last three a large decrease from the previous year.

A summary of the profit and loss account for the year is as follows:

Interest on funded debt.....	\$766 836 67
Taxes, rents and interest.....	452,218 37
Losses, damage, old accounts, etc.....	65,516 26
	\$1,284,571 30

Net earnings..... \$432,539 02

Rents and miscellaneous..... 48,000 03

490,539 05

Deficiency for the year..... \$804,032 25

Which being added to the balance from the previous year makes the balance of the profit and loss account at the close of the year, \$4,127,404.95. The number of through passengers carried was 36,826; local, 527,631; total 564,457. The average receipts per passenger were \$0.89; for each through passenger, \$4.39, or 2.17 cents per mile. The freight transported was 764,969 tons, of which 386,302 tons was through freight and 378,667 local. The increase in through freight was 93,405 tons, or 31.89 per cent.

During the year 3,220 tons of new and re-rolled rails and 109,943 ties have been used in renewals; six miles of new sidings were laid and 12 miles of track ballasted. The bridge over the Muskingum River at Marietta was rebuilt and several smaller bridges renewed. Two new station houses were rebuilt and others repaired. The cutting down of the temporary grade at Norwood has been so far completed as to allow one track to be laid on the new road-bed, and the arching of two tunnels has been completed, both for double track. Work on the Baltimore Short Line from Warren's to Belpre has been pushed forward. Seven engines have been purchased, making 79 in use, and 95 box and 50 flat cars have been added to the equipment. The expenditures for new construction and equipment during the year were \$577,115.50, of which \$202,582.56 was for equipment.

Ohio & Mississippi.

This company has published a condensed statement of its operations for the year ending June 30, 1874, in advance of the annual meeting.

The road owned and operated extends from Cincinnati, O., westward to East St. Louis, Ill., 340 miles, with a branch from North Vernon, Ind., south to Jeffersonville, 53 miles, making 393 miles in all. It is the only direct line from Cincinnati to St. Louis and part of the shortest line from St. Louis or Louisville to Baltimore.

The operations of the road for the year were as follows:

	1874. 1873.
Earnings from passengers.....	\$1,011,096 98
Earnings from freight.....	2,329,744 50
Earnings from express and mail.....	137,230 62

Total earnings..... \$3,478,074 10

Less transfers (formerly included)..... 355,732 38

Earnings..... \$3,122,341 72

Operating expenses..... 2,546,880 78

Less transfers, as above..... 355,572 38

Net earnings..... \$2,191,308 40

Interest on funded debt..... \$931,193 92

Interest on funded debt..... 846,041 48

Sales of bonds..... \$85,151 84

328,879 00

Total..... \$414,030 84

New construction..... 129,233 72

New equipment..... 24,311 83

Miscellaneous and interest on temporary loans (\$80,207 66)..... 64,673 81

Increase assets and decrease liabilities..... 195,311 48

\$414,030 84

The gross earnings were \$8,850 and the net earnings \$2,369 per mile, against \$9,553 and \$2,989 the preceding year. The operating expenses (including taxes) were 67 1/2 per cent., against 65 1/2 per cent. last year.

The floating assets at the close of the year were as follows:

Cash.....	1874. 1873.
Uncollected earnings.....	\$220,659 34 \$93,792 75
Individual accounts.....	104,193 23 136,949 41
Supplies and materials on hand.....	27,688 53 14,400 05
	166,174 06 194,110 16

Totals..... \$518,715 16 \$499,252 37

The current liabilities at the same time were:

Pay rolls.....	1874. 1873.
Bills payable.....	\$102,802 01 \$137,003 89
Open accounts.....	108,986 80 154,004 90
Temporary loans in New York.....	155,116 11 3,064 82
	237,000 00 425,000 00

Totals..... \$603,904 92 \$719,763 61

Thus showing an improvement in the company's condition of \$195,311.48. Since the close of the year the temporary loans have been reduced to \$160,000.

The bonded debt is \$10,863,000, or \$27,641 per mile, the annual interest charge being \$762,650, or \$1,940.59 per mile.

The preferred stock is \$4,030,000 (\$10,254 per mile) and the common stock \$20,000,000, or \$50,890 per mile.

The President says: "The main features of the report are: 'First.—The reduction of \$500,000 in bonded debt, by pay-

ment of \$394,000 Western Division bonds of maturity, January 1, 1874, and by payment of \$164,000 on account of the several sinking funds.

"Second.—The increase in floating assets, and decrease in current liabilities, making together \$195,311.48 in your favor.

"Third.—The fact that all interest coupons on bonded debt and sinking fund redemptions and purchases, have been paid out of earnings.

"These important obligations have been fulfilled in ordinary course during a season of extraordinary panic and railroad financial disaster.

"From the effects of the panic we are gradually recovering, and we believe that with further gains in traffic, we shall ere long be enabled to resume payment of preferred stock dividends out of earnings which, as you know, we were forced to pass by insufficiency of earnings.

"The opening for highway service of the magnificent new bridge over the Mississippi River at St. Louis, early in July, no doubt, afforded some of the considerable subsequent increase obtained in passenger earnings, and that, notwithstanding full trains do not yet run over the bridge.

"The railroad use of the bridge waits completion of depot buildings at St. Louis. It is, however, expected these buildings will be ready for occupancy early in October, and the benefit counted on from the passing of trains will then surely follow.

"Rigid economy is practiced in every department of the company's business, but not at the expense of efficiency. Our trains have been moved regularly and on time; and I have again the great satisfaction to congratulate you on a continued immunity from serious accident to life or property on your road during the past year."

The Right to Confiscate.

The Chief Justice of the Supreme Court of Wisconsin has published an abstract of the recent railroad decision of his court, which makes the grounds of it perfectly intelligible. The argument, which is very simple and logical, is this: The Constitution of the United States contains a clause forbidding the States from passing laws "impairing the obligation of contracts," and ever since the decision of the Supreme Court in the Dartmouth College case it has been considered settled law in this country that the charter of a college or railroad or any other similar corporation is a "contract" within the meaning of this clause. It follows from this, as equally well settled law, that a State legislature, having once made a contract with a corporation by giving it a charter, must afterwards leave the contract or charter alone. There is, however, one exception—where the State itself has reserved the right to alter or repeal the charter. In that case the contract has been made subject to the right of one of the parties to alter or cancel it. This is the case in Wisconsin. In the State constitution, for the purpose of taking the railroads in that State out of the rule established by the Supreme Court in the Dartmouth College case a clause was inserted giving the Legislature the power to "alter or repeal" corporate charters, and the Potter law, as it is called, was passed under the power supposed to be granted by this clause. The law is no doubt an alteration of the charter, for it takes away from the roads affected by it all control over their tariffs, and vests in the State itself the right to determine the amount of the transportation charges. The railroads have opposed the law principally upon the ground that the new rates make it impossible for them to carry on their business at a profit. This is disputed by the supporters of the law; but it will easily be perceived that whether or not it be a fact is a matter of complete indifference to our present point of view. The Constitution gives the right to "alter" the charters in any way; the power is absolute and uncontrolled; and the people who invested money in the roads, either by stock subscriptions or purchase of bonds, did so, or ought to have done so—and if they did not it was no fault of the State's—with a full knowledge that the State had a complete power to make their property worthless at any time.

This is the argument of those who support the law, and we may notice here one practical consequence from it which seems to have escaped the attention of the railroad people themselves. They are reported to have declared, since the decision was announced, that they intend to conform to the law, but to have added that they should be unable any longer to furnish the public with the same sort of transportation that they have furnished heretofore. If they are only to be allowed to charge Potter rates they must give the public Potter cars, Potter rails and Potter time. They will be obliged to take off some of their best cars, use more of their worst cars, make slower speed, and spend less in keeping the road-bed in good condition. But if the argument we are now considering be sound, the Milwaukee and Northwestern roads had better be very careful how they make these changes. The people are watching them, and the people know that the power to alter a charter does not give merely the power to fix rates: it gives power to do anything; and under it the roads can be made not only to lower their rates, but to improve their cars, speed and roadway at the same time. All that would have to be done would be to pass a new law to that effect next winter, and the roads would have to conform to it just as they now have to conform to the Potter law as to the rates. The argument adopted by the supporters of the law is conclusive upon this point. The very perfection and logical coherence of it make it all the more impossible to escape from this conclusion. Last winter the Grangers came to the conclusion that what they wanted was reduction of the rates; next winter their fancy may take another turn, and they may think that each passenger ought to have a car for himself, with meals along the route furnished gratis by the company. On the principle maintained by the supporters of the Potter law, the legislature has a perfect right to force the roads to do this.

The whole matter will very shortly come before the Supreme Court of the United States, and it is, as we believe, of the last importance that it should be there determined not only correctly, but in such a way as to inspire public confidence in the decision. The Court, for the first time almost in its history, is out of politics. The judges are not Democrats or Republicans, nor are they politically divided as the country once was on the question of internal improvements. Since the lamentable fiasco of the legal-tender decision, the Court has shown a marked tendency to conservatism and self-respect. In construing the new amendments to the Constitution, it has shown a very laudable determination to cling to old and well-settled maxims of interpretation. The country will look with deep interest to its decision in this case; and, in view of the approaching argument, it may be worth while to point out one or two considerations which are of great importance, and do not yet seem to have attracted much attention.

In the first place, the Supreme Court of Wisconsin and the supporters of the Granger legislation generally indulge in a good deal of loose talk about a distinction of some kind between the corporate property of the railroad other than the franchise, and the franchise. In Chief Justice Ryan's abstract, after saying that the State is under a "moral obligation" not to reduce tolls beyond a fair and reasonable amount (though where this moral obligation comes from, when the State has given notice to all the world that it has reserved the right to do anything it pleases with the tolls, we do not know), he says that "power over the franchise is absolute. But the power to alter or repeal cannot affect the property of corporations other than the franchise. Such right of property is inviolable." The Su-

LOCOMOTIVE RETURNS, APRIL, 1874.

Master Mechanics of all American railroads are invited to send us their monthly reports for this table.

NAME OF ROAD.	Number of miles operated.	Number of Locomotives in service.	Mileage.	No. Miles run to Ton of Coal.	Cost of Wood.	Point of Oil.	Average No. of Freight Cars Hauled.	Cost per Mile in Cents for					Average cost of Coal, per ton.	Wood, per cord.
								Repairs.	Fuel.	Stokers.	Mechanics.	Engineers, Firemen and others.		
Allegheny Valley.	56	135,868	37,50	18.38	4.29	5.28	0.95	7.99	18.36				\$1.75	\$2.70
Atlantic & Great Western (First & Second Div.)	228	90	294,405	48.24	4.27	5.64	0.55	0.78	6.37	17.51			2.55	3.45
" " (Third & Fourth Div.)	203	50	132,912	48.24	3.92	5.64	0.56	0.76	6.08	16.96			2.56	3.46
" " (Mahoning Division)	113	60	132,637	48.24	3.88	5.64	0.47	0.78	5.92	16.79			2.56	3.46
" " (Shenango & Allegheny)	33	7	15,705	59.94	0.68	3.76	0.88	0.90	5.84	11.28			2.10	3.35
California Pacific	148	9	24,350	76.08	8.87	9.69	0.48	0.45	7.08	26.57			7.75	8.30
Central Pacific (Western Division)	173.4	38	100,950	44.89	9.46	17.39	0.73	0.26	8.15	36.17			4.73	6.73
" " (Sacramento Division)	119.5	40	86,876	28.24	11.73	16.71	0.82	0.62	8.37	38.21			4.73	6.73
" " (Truckee Division)	204.6	21	62,585	34.5	16.16	19.63	0.66	0.82	8.46	35.73			7.45	4.73
" " (Humboldt Division)	236.6	22	61,668	39.65	7.53	18.03	0.73	0.30	7.88	34.46			7.45	4.73
" " (Salt Lake Division)	182.3	33	64,400	35.17	6.66	20.33	0.73	0.58	7.76	36.05			7.45	4.73
" " (Oregon Division)	151.48	8	19,757	41.39	5.52	11.42	0.68	0.78	7.29	35.54			4.73	4.73
" " (Visalia Division)	188.3	9	20,867	46.57	4.22	17.97	0.76		9.17	32.12			7.45	4.73
Chicago, Burlington & Quincy	292	655,153	36.90	15.27	19.84	6.63	7.61	0.88	8.04	22.76			2.70	4.25
Chicago, Rock Island & Pacific (Illinois Div.)	71	26,589	37.59	18.39	5.48	7.45	0.85		6.86	20.34			2.72	3.80
" " (Iowa Division)	71	174,056	36.90	16.42	3.28	7.68	0.59		7.06	18.55			2.72	3.80
" " (Southwestern Div.)	42	105,447	38.72	12.92	4.91	7.22	0.64		6.26	19.09			2.72	3.80
Cleveland, Col., Cin. & Ind. (Columbus Div.)	138	55	142,005	45.10	2.89	7.60	0.82		7.19	17.99			2.36	3.50
" " (Indianapolis Div.)	207	64	208,169	47.53	4.81	6.51	0.68		7.33	19.23			2.72	3.80
" " (Cincinnati Div.)	130	28	66,821	39.42	2.85	7.21	0.64		8.34	18.94			2.63	3.80
Cleveland & Pittsburgh	87	176,539	51.60	17.19	4.21	4.99	0.73		6.91	16.83			2.30	1.96
Del., Lacka. & West. (Bloomsburg Div.)	80	34	54,020	40.74	8.66	5.23	0.62		6.43	21.13				
Denver Pacific	159.24	58,828	50.07	10.83	2.23	6.26	0.40		6.46	15.35			3.75	6.21
Flint & Pere Marquette	283.5	62	149,141	38.23	2.49	8.95	0.68		6.62	18.76			4.80	4.80
Illinois Central (Chicago Division)	293.75	38	62,056	34.02	16.25	18.58	0.26		6.98	17.39			1.90	4.35
" " (North Division)	225	41	64,637	29.99	13.25	16.94	0.46		6.94	22.33			1.90	4.35
" " (Iowa Division)	401	38	92,582	34.83	12.51	16.87	0.62		6.87	21.88			1.90	4.35
Indianapolis, Bloomington & Western	67	166,290	21.13	10.79	6.91	6.93	0.36		6.78	20.98			3.90	3.90
Kansas Pacific	88	145,865	34.49	12.67	4.56	7.29	0.83		8.86	21.64			1.89	2.92
Kansas City, St. Joseph & Council Bluffs	23	61,539	45.30	23.30	5.93	11.07	0.54		6.85	23.84			3.75	4.18
Lake Shore & Michigan South. (Buffalo Div.)	91	191,100	45.56	16.58	7.90	7.30	0.60		7.70	22.50			3.00	4.00
" " (Erie Div.)	118	235.3	47.05	28.18	4.52	6.78	0.68		6.05	18.25			3.50	3.80
" " (Toledo Div.)	79	176.5	34.98	14.91	5.20	18.76			6.94	22.90			4.00	4.00
" " (Mich. South Div.)	209	455,320	45.98	20.71	5.89	8.46			7.23	21.68			4.50	4.50
Louisville, Cincinnati & Lexington	17	75,769	40.00	13.69	6.04	9.25	0.90		8.55	24.74			3.87	4.10
Leavenworth, Lawrence & Galveston	182.7	16	24,433	61.23	4.80	6.61	0.35		6.20	17.96			3.75	5.00
Marquette, Houghton & Ontonagon	17	15,641	69.61	18.00	24.13	25.77	10.74	1.41	10.86	48.78			7.00	2.90
Pennsylvania (New York Division)	110.9	108	279,731	33.22	4.90	17.40	1.10		25.40				0.20	7.13
" " (Amboy Division)	152.3	38	71,909	41.92	3.30	14.00	1.40		18.70				0.20	7.11
" " (Belvidere Division)	84.6	189	416,090	29.83	3.50	6.80	0.90		11.20	0.07			0.28	3.28
" " (Philadelphia Division)	204.3	134	387,620	25.58	5.30	7.90	0.60		18.80	0.07			0.28	3.28
" " (Middle Division)	181.6	87	167,415	20.01	4.20	10.10	0.80		15.10	0.07			0.28	3.28
" " (Pittsburgh Division, East End)	112	268,453	31.14	14.01	5.30	6.40	0.70		12.40	0.07			0.28	3.28
" " (Pittsburgh Division, West End)	100.3	28	64,869	26.66	2.00	8.00	0.60		10.60	0.07			0.28	3.28
" " (Tyronne Division)	103.6	34	68,348	35.61	2.70	5.80	0.50		9.00	0.07			0.28	3.28
" " (West Pennsylvania Division)	62.5	7	11,766	42.47	16.30	4.10	0.60		21.60	0.07			0.30	3.30
" " (Lewistown Division)	56.5	8	8,634	61.61	6.80	3.00	0.40		10.70	0.07			0.30	3.30
" " (Bedford Division)	468.9	170	481,819	38.53	5.20	6.11	0.78	1.04	6.30	19.52				
Pitts., Fort Wayne & Chicago (Eastern Div.)	114	338,174	39.40	30.80	5.20	7.00	0.40		6.20	17.40			2.60	3.26
Pitts., Cin. & St. Louis (Little Miami Div.)	40	92,576	40.60	11.30	5.40	6.70	0.90	3.70	7.50	23.20			2.36	3.47
St. Louis & Southeastern (St. Louis Div.)	114	87,371	56.10	11.80	6.20	3.50	0.70		8.80	16.90			2.90	
" " (Nashville Div.)	54.201	35.40	7.60		5.40	4.60			6.40	17.90			2.00	
South Carolina														
Toledo, Wabash & Western		470,151	43.46	13.67	5.00	5.92	0.67	1.32	5.30	18.30				

* Switching engines allowed 6 miles per hour.

† Three empty cars rated as two loaded ones.

preme Court of Wisconsin has always had a very respectable reputation, and we have therefore endeavored with humility and patience to make out what this means. We confess ourselves unable to do so. Most railroads are built nowadays "on bonds," &c., &c., with borrowed money. It is maintained among some of the Western moralists who have considered the subject that this is a wicked way to build railroads; but no other way has been suggested by them as a substitute. When a road is built on bonds, one thing is pretty evident, that anything which affects the right to collect tolls affects the value of the bonds; and it is a notorious fact that the securities of the Granger railroads, as they are called, have been unfavorably affected by the recent legislation. But though the franchise—that is, the right to take tolls—may be taken away altogether, or altered in any way that seems best to the Legislature of Wisconsin, and in this way the bonded debt be practically wiped out, there is still, according to this Court, some right of property which is "inviolable." What is it? We sincerely trust that at Washington this matter will not be left undetermined. The franchise is not inviolable, because it may be repealed to-morrow; the bonds are not inviolable, because anything that touches the franchise touches them, so that we are left very much in the dark as to what these inviolable rights are. It might be well for the Supreme Court at Washington to consider the case in this light: If a State reserves a right to repeal or alter a charter, have bondholders in such a State any rights at all, and if so, what are they? As we understand this decision, they have no rights which the State is bound to respect or which the United States is bound to enforce; and we take this opportunity of saying, that until this decision is reversed, anybody who puts his money into Wisconsin railroad bonds does so at his peril. The right of confiscation is what this decision is based upon—a right which, like that of altering or amending railroad charters, is an "attribute of sovereignty." Lawyers and judges are justly averse, in the consideration of legal questions, to look too closely at practical consequences, for the excellent reason that, whatever conclusion is reached, some bad practical consequences are certain to follow, and that the only sure guide is legal principles. This rule, however, does not apply to legal consequences, and it is legal consequences we are here considering. What we say is this: the right to alter or annul a charter gives, according to the Wisconsin Supreme Court, the right to fix rates; but the right to fix rates involves the right to impair or destroy the value of property which depends for its very existence on the rates—i. e., mortgage bonds. Therefore we have quite as much right to begin at the other end, and inquire not what the State may do with the franchise, but what the bondholders can do without the franchise. According to Chief-Justice Ryan, they, or some one, has certain "inviolable rights." What are they?

Again, no lawyer will contend that the State of Wisconsin can have any more power over chartered or other kinds of contracts, through reserving a right to "alter or repeal," than it would have were there no provision in the United States Constitution on the subject. Wipe out the whole United States Constitution, and make the Legislature of Wisconsin sovereign in fact as well as name, and the naked question would then appear, whether a State Legislature can confiscate railroad property by fixing rates. The Wisconsin constitution, as well as the constitutions of most other States, contains what is commonly known as a bill of rights, and one of the clauses in this bill (which is not an invention or device of constitution makers, but one of the dearly-bought immunities which were wrung long ago from the tyranny of government) forbids the taking of private property for public use without compensation. We cannot here go into an examination of the numerous

cases which have been decided in this country as to what constitutes a "taking" within the meaning of this clause; but the Supreme Court at Washington has not very long ago laid it down (in the case of Pumpelly vs. Green Bay, 13 Wallace 165) that the property need not be absolutely taken in the narrow sense of the word, but any serious interruption to the common and necessary use of it will be considered equivalent to a taking. Now, if any one can discover any more effectual way of seriously interrupting the common and necessary use of a railroad franchise than by altering the rates of transportation, we should like to know what it is. The value of the property consists entirely in the right to take tolls, and yet the State, after giving this right and allowing money to be borrowed on the faith of it, and on the faith of it alone, maintains that it can do what it pleases on the subject.

Again, what is the right of taking tolls? According to the supporters of the Granger legislation, it is nothing more nor less than a kind of taxation. The railroads are, for certain public purposes, authorized to collect and appropriate from the farmers a certain charge, which is collected by a specific assessment on the property transported. Supposing this to be a true view of the matter, it must not be forgotten that something more has been done. The road has mortgaged this grant to the bondholders, and if the farmers out of the tax is interfered with, it is the bondholders who suffer. If, now, the State, under its sovereign right to collect taxes, can fix the amount of this charge at any figure it pleases, and let the money, which would otherwise go to the bondholders, go to the farmers, what is this but taxing A for the benefit of B? There is nothing more sovereign than the power of taxation, yet there is nothing so well settled as that a State cannot, under it, take A's property and give it to B. There are no constitutional provisions on the subject in any of the States, so far as we are aware, because it has never been considered necessary until recently to provide in constitutions against the actual practice of highway robbery by the chosen representatives of the people.

And this brings us to the consideration of the point on which rests the whole case. No lawyer will deny that when the Legislature reserves a right to alter or amend a charter, the State has some reserved rights. But it is not necessary for us, and it is not at all necessary for the Supreme Court, to enumerate or codify these rights. The opponents of this Western legislation maintain that whatever the reserved rights may be, the right to pass laws completely taking away the main corporate franchise, without compensation, is not among them. The power over charters, like the power over taxation or the right to police power, must be exercised in a rational way. Must be to "alter or amend" this kind of contract must be looked at not only in the light of the literal meaning of the words, but in the light of all the circumstances of the case—including the fact that the charter has allowed important rights to be created under the charter which by every principle of public law are inviolable. The whole argument in favor of the Potter law is a logic-chopping argument. The conclusion flows from the premises as naturally as the sun in the sky. If it were all in *dardi* or *barbara*, if law were formal logic, it would be perfect. But the way to decide the case is not this; we must take the whole Constitution of Wisconsin, and the whole Constitution of the United States, and then ask ourselves what is this Potter law—whether it is or is not confiscation? If it is, is confiscation legal? If it is illegal, then the Supreme Court of the United States will say so to the State of Wisconsin: "Your law is illegal; we have wiped it from your statute book. You have a right to alter or amend charters, but they must be altered in a reasonable and moral way. You cannot use this right as a cover for robbery, and your so-called law is void."—*The Nation*, Sept. 24.